

Optra S, Optra Se 3455 and Optra K 1220

SIMM for IPDS

***Installation and User's
Guide***

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About this Guide

Refer to your Lexmark™ Optra™ printer's *User's Guide* for basic information about your printer and how to use it.

Use this booklet as a reference for the SIMM for IPDS™. It includes information on:

- Installing the SIMM for IPDS.
- Understanding, using, and changing the option settings to affect the way host jobs are printed.

Conventions

- Printer menu keys and operator panel texts are written in **bold**.
- Option values are written in “quotation marks”.
- Section titles and book titles are written in *italic*.
- On screen text is written in Courier typeface.
- Keyboard keys are written in angle brackets, e.g. <Enter> or <F1>.
- On screen push buttons are marked like this |Ok|.

1 Introduction

1.1 Equipment Requirements and Specifications

Thank you for purchasing the SIMM (Single Inline Memory Module) for Intelligent Printer Data Stream (IPDS). This provides your printer with high quality IBM™ host connectivity print output. With the appropriate adapter and host software, your printer becomes an IBM host workstation printer capable of printing AFP™ or IPDS documents from an AS/400™, System/370, System/390™, or System/36.

To use the SIMM for IPDS, your Lexmark Optra printer must have a minimum of 4 MB of installed memory and one of the following:

- a MarkNet™ internal print server for connection to a Token-Ring or Ethernet LAN.
- a Coax/Twinax Adapter for SCS internal adapter for connection to a host via coax or twinax cables.
- a MarkNet Pro external print server for connection (using the parallel port) to a Token-Ring or Ethernet LAN.
- a MarkNet XLe print server for external connection (using the parallel port) to a Token-Ring or Ethernet LAN.

Code Levels Required:

MarkNet Pro	2.9.15 (or greater)
MarkNet XLe	04.130.01 (or greater)
Adapter for SCS	H01-9072 (or greater) for coax H02-8491 (or greater) for twinax

MVS Maintenance Level Required in TCP/IP Profile

IBM PTF UQ03848
IBM PTF UQ11550

For help determining your code levels, see chapter 7 *Using the SIMM for IPDS with a MarkNet Internal or External Print Server* or chapter 8 *Using the SIMM for IPDS with the Adapter for SCS*.

If you need to update your adapter's code level, contact the Lexmark Technical Support Center. MarkNet print server and Adapter for SCS firmware updates are also available from the Lexmark web site at <http://www.lexmark.com>.

1.2 Customer Support

If you cannot find answers in this booklet about using the SIMM for IPDS, please contact your point of purchase, your local Lexmark office, or call the Lexmark Technical Support Center.

In North America: Lexmark International, Inc.
740 New Circle Road
Lexington, KY 40550

Phone: 1-800-Lexmark or 606-232-3000
Fax: 606-232-2873

Worldwide: For worldwide Lexmark support phone numbers, visit the Lexmark web site at <http://www.lexmark.com>.

2 Installation

2.1 Before Installing the SIMM for IPDS

Installing the new SIMM for IPDS may restore the printer's default menu settings. Follow the instructions in the following section to print out the current user default settings and installed printer options before installing the new SIMM for IPDS. Save the printed sheet(s) for reference as you may want to refer to these settings in the future. Refer to your printer *User's Guide* if you need information about factory defaults.

Note: Installing the SIMM for IPDS in your printer changes your printer's memory usage.

2.2 Printing the Menu Settings

1. Turn the printer power ON (I).
2. Press **Menu>** until **TESTS MENU** appears. Press **Select**.

Note: Some printers have **Menu+** and **Menu-**. On these printers, select **Menu+** for **Menu>** and **Menu-** for **<Menu**. Examples in this book will use **Menu>** and **<Menu**.

3. Press **Menu>** until **Print Menus** appears. Press **Select**. The message **Printing Menu Settings** is displayed. The printer returns to the **Ready** state after the list of user default settings prints.

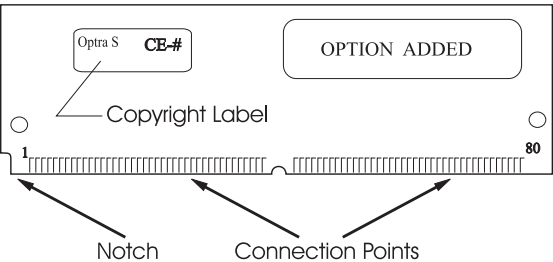
2.3 Installing the SIMM for IPDS

Warning: The SIMM for IPDS is easily damaged by static electricity. Make sure to touch the printer’s metal cabinet before handling the SIMM or wear an anti-static wrist strap.

Follow these instructions to install the SIMM:

1. Unpack the SIMM for IPDS.

Avoid touching the connection points along the edge of the card. Your card may vary in appearance. Save the packing materials.



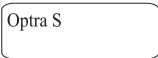
2. Check the printer model and SIMM to be sure you install the SIMM in the correct Optra model. The printer model number is located on the front or top cover. Identify the SIMM by looking at the SIMM copyright label.



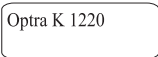
If the SIMM is labeled “Optra S/Se” and “CE-2” is written on the copyright label, the SIMM may only be used in the Optra S/Se models **1255, 1625, 1855, 2455** and **3455**.



If the SIMM is labeled "Optra S" and "CE-1" is written on the copyright label, the SIMM may only be used in the Optra S models **1255, 1625, 1855** and **2455**.



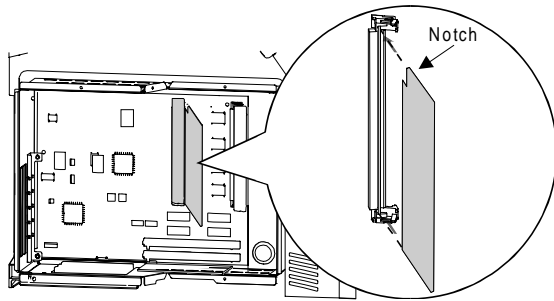
If the SIMM is labeled "Optra S" and the copyright label is blank, the SIMM may only be used in the Optra S models **1250, 1620, 1650, 2420** and **2450**.



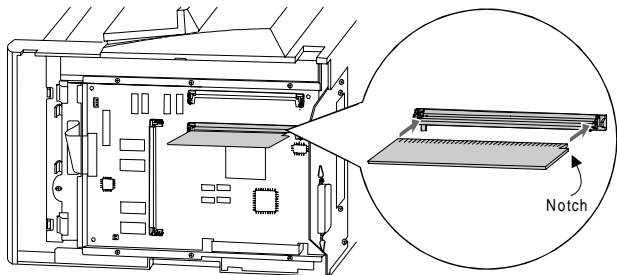
If the SIMM is labeled “Optra K 1220”, the SIMM may only be used in the Optra K 1220.

3. Turn the printer power OFF (O) and unplug the printer power cord.
4. Disconnect all cables from the back of the printer.
5. You must access the printer system board. Refer to your printer *User's Guide* and follow the instructions on how to access the printer system board. After accessing the system board proceed to step 6.
6. Locate the Optional Firmware SIMM Connector on the system board. Refer to the figure below matching your printer. Hold the option with the connection points pointing toward the system board and the notch as shown in the illustration for your printer. Insert it all the way into the connector at a 45° angle.

Optra S/Se

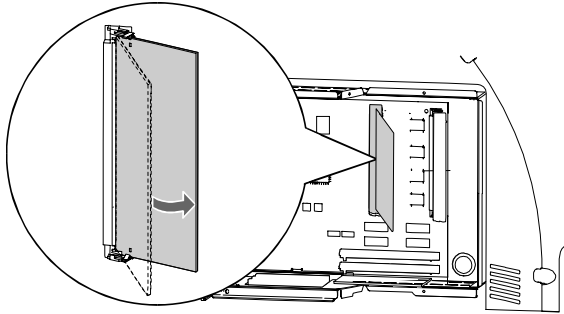


Optra K

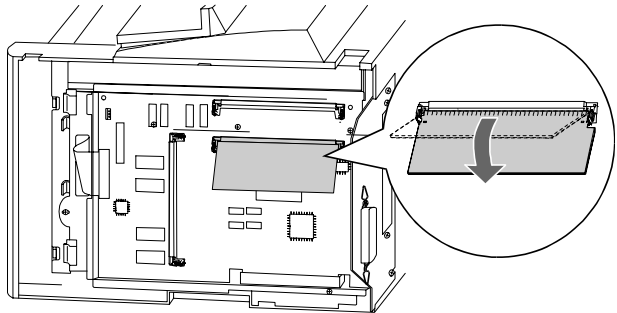


7. Press the option down toward the system board until it snaps into place. Make sure both metal clips on the connector are fastened and the two pins on the connector are pushed through the holes in the option. Refer to the figure matching your printer.

Optra S/Se



Optra K



8. You must have at least 4 MB of installed memory to use the SIMM for IPDS. Refer to the menu settings page you printed before beginning the SIMM installation to determine the amount of printer installed memory. Refer to your printer *User's Guide* to install additional user memory and any other options. After installing additional options, proceed to step 9.
9. Close the printer system board. Refer to your printer *User's Guide* and follow the instructions on how to close the *Printer System Board*. After closing the *Printer System Board*, proceed to step 10.
10. Reconnect the printer cables.

11. Plug in the printer power cord.
12. Turn the printer power ON (I).

Note: If all diamonds remain displayed on the printer operator panel or if the printer does not warm the engine and display **Ready** on the operator panel, follow the steps in the next section to remove the SIMM and repeat the steps in this section to reinstall it. Be sure the SIMM can be used in your printer model. Refer to step 2 for SIMM identification.

A minimum of 4 MB of memory is required for IPDS printing. If there is less than 4 MB of installed memory in the printer, the message **Not enough memory for IPDS** is displayed in the operator panel. This message is displayed at power on and when the **IPDS MENU** is accessed. The IPDS Menu settings can be accessed and configured but IPDS jobs can not be printed from the host. If there is less than 4 MB of installed memory, a message will also be printed on the IPDS Print Menus page. Jobs may be printed using other emulations.

13. Reset the factory defaults.
 - a. Press **Menu>** until **TESTS MENU** appears. Press **Select**.
 - b. Press **Menu>** until **Factory Defaults** appears. Press **Select**.
 - c. **Restore** appears. Press **Select**. **Resetting Factory Defaults** is displayed while the printer resets the defaults.
14. After you have finished installing the SIMM for IPDS, print a menu settings page to verify the installation. The printed page lists current menu settings and installed options.
 - a. Press **Menu>** until **TESTS MENU** appears. Press **Select**.
 - b. Press **Menu>** until **Print Menus** appears. Press **Select**.
 - c. **Printing Menu Settings** appears. The printer prints the menu settings pages, which includes the **IPDS MENU** default settings.

Note: After verifying the installation, you may want to set your other printer settings that were different from the factory defaults. See the menu settings page you printed before starting this installation for comparison.

Tip: Place a label on the front of the printer indicating the connector locations of all installed options to avoid having to print the Menu Settings.

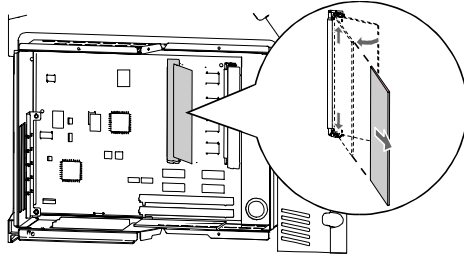
2.4 Removing the SIMM for IPDS

Warning: The option card is easily damaged by static electricity. Before handling the cards, be sure to touch the printer's metal cabinet or put on an anti-static wrist strap.

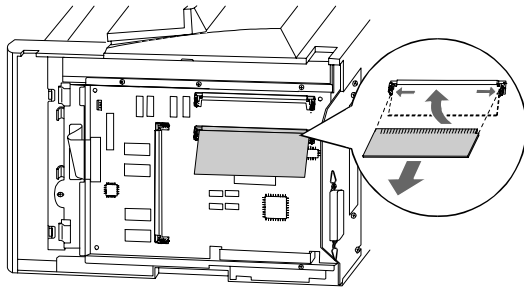
1. Turn the printer power OFF (O) and unplug the printer power cord.
2. Disconnect all cables from the back of the printer.
3. You must access the printer system board. Please refer to your printer's *User's Guide* and follow the instructions on how to access the *Printer System Board*. After accessing the *Printer System Board*, proceed to step 4.

4. Refer to the figure below for your printer to locate the SIMM for IPDS in the connector slot. Push out on the metal clips at each end of the connector and rotate the SIMM away from the system board.

Optra S/Se



Optra K



5. *Place the SIMM for IPDS in its original packaging. If you did not save the packaging, wrap the card in paper and store it in a box.*
6. *Close the Printer System Board. Refer to your printer User's Guide and follow the instructions on how to close the Printer System Board. After closing the Printer System Board, proceed to step 7.*
7. Reconnect the printer cables.
8. Plug in the printer power cord.
9. Turn the printer power ON (I).

3 Using the Operator Panel Setup Options

The SIMM for IPDS option settings may be changed from the printer operator panel or changed remotely by sending a text job with special commands to the printer. This section of the guide reviews how to change and save option settings using the operator panel. See chapter 6 *Remote Configuration of Printer IPDS Settings* on page 73 for information on changing printer option settings remotely.

See chapter 4 *Setup Operations Reference* for a listing of all possible values for each option.

Note: Please refer to your printer's *User's Guide* for instructions on how to use the operator panel. The layout of the operator panel may vary on the different Optra models.

3.1 SIMM for IPDS Setup Options vs. Printer Setup Options

Changes to the option settings under the **IPDS Menu** will only affect the way IPDS jobs print. These changes will not affect PostScript™ or PCL™ jobs.

Changes to printer settings under the various printer menus will affect the way PostScript and PCL jobs are printed. Many of these printer settings will also affect IPDS jobs.

This guide discusses changing the **IPDS Menu** settings. Please see your printer's *User's Guide* for information on changing other printer settings.

3.2 Changing IPDS Settings Using the Operator Panel

3.2.1 The IPDS Setup Menu

Access the SIMM for IPDS options and settings from the **IPDS Menu**. To reach the menu:

1. From a **Ready** status, Press **Menu>** from the operator panel main screen until the **IPDS MENU** appears in the second line of the display.

Note: Some printers have **Menu+** and **Menu-**. On these printers, select **Menu+** for **Menu>** and **Menu-** for **<Menu**. Examples in this book will use **Menu>** and **<Menu**.

2. Press **Select** to select the **IPDS MENU**.

You can modify printer settings by:

- Selecting a setting from a list of values.
- Changing a numerical setting.
- Changing an On/Off setting.

Examples of changing each type of setting follow.

3.2.2 Selecting a New Value as a Setting

1. From a **Ready** status message, press **Menu>** or **<Menu**. The menu names appear.
2. Continue to press and release **Menu>** or **<Menu** until you reach the menu you need.

3. Press **Select** to select the menu or menu item shown on the second line of the display.
 - If the selection is a menu, the menu is opened and the first printer setting in the menu is displayed.
 - If the selection is a menu item, the current setting for the menu item is displayed. (The current user default setting has an asterisk (*) beside it.)

Each menu item has a list of valid values for the menu item. A value can be:

- A phrase or word to describe a setting.
 - A numerical value that can be changed.
 - An On or Off setting.
4. Press **Menu>** or **<Menu** to move to the value you need.
 5. Press **Select** to select the value on the second line of the display. An asterisk appears beside the value to indicate that it is now the user default setting. The display shows the new setting for one second and then clears and shows the word **Saved**. It then displays the previous list of menu items.
 6. Press **Return** to go back to previous menus. Then, make additional menu selections to set new default settings. Press **Go** once to return to the **IPDS MENU** and a second time to return to **Ready** if this is the last printer setting to change.

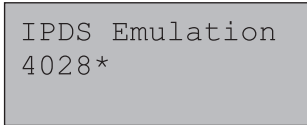
User default settings remain in effect until you save new settings or restore the factory defaults. See section 3.2.5 *Activating Saved Option Changes* on page 26.

Settings you choose from your IPDS print job may override the user default settings you select from the printer operator panel.

3.2.3 Selecting a Setting from a List of Values

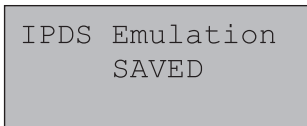
When you select some menu items, the printer displays a list of values. Press the **Menu>** button to cycle through all the available items. To choose a new user default setting, press **Select**.

For example, if you select **IPDS MENU**, **EMULATION**, **IPDS Emulation**, you see the following in the front panel display:



IPDS Emulation
4028*

Cycle through the various emulations by pressing **Menu>** or **<Menu**. Press **Select** to select the appropriate IPDS emulation. **SAVED** appears on the display for one second. An asterisk (*) displays next to the value you selected to indicate it is the new user default.



IPDS Emulation
SAVED

If this is the last printer setting to change, press **Return** to back up to the list of menus. Press **Go** twice to display the **Ready** status message. See section 3.2.5 *Activating Saved Option Changes* on page 26.

3.2.4 Changing a Numerical Setting

If you choose a menu item that has a numerical value, the item name appears in the first line of the operator panel display and the numerical value displays in the second line of the operator panel display.

The current setting has an asterisk (*) next to it.

To increase the numerical value, press **Menu>**; to decrease the current setting, press **<Menu**. The displayed setting changes accordingly. To save the new setting, press **Select**. An asterisk (*) is displayed next to the new setting.

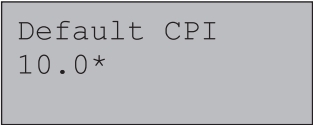
For example, if you select **MENUS**, **IPDS MENU**, **PAPER HANDLING**, **Top Margin**, you see the following display:



```
Top Margin  
0*
```

Press **Menu>** or **<Menu** to increase or decrease the offset in pels for the default top margin. Then press **Select**. The display shows the new settings for one second and then clears and shows the word **SAVED**. Press **Return** to back up the list of menus, or press **Go** once to display the **IPDS MENU** and a second time to display the **Ready** status message if this is the last printer setting to be changed. See *Activating Saved Option Changes* below.

Another type of numerical value is found if you select **MENUS**, **IPDS MENU**, **EMULATION** and **Default CPI**. This option consists of two numbers, which are set independently of each other. Use **Menu>** or **<Menu** to increase or decrease the number value. Press **Select** to switch to the second number after setting the first. Press **Select** again to save the value. See display below.



```
Default CPI  
10.0*
```

3.2.5 Activating Saved Option Changes

You may need to power the printer OFF and ON to activate an option change. See the section below, which corresponds to your "attachment" method.

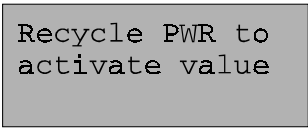
LAN Attachment

Most changes to **IPDS MENU** settings are active on the very next IPDS print job. This is true when you are LAN attached using a MarkNet internal print server or a MarkNet Pro external print server, or MarkNet XLe adapter. When the **IPDS Timeout** option is set to a value other than **Host Controlled**, you will have to power the printer OFF and ON to activate some menu setting changes. See note below.

Coax/Twinax Attachment

If you are attached to your host using a coax or twinax connection, most settings do not become active until the printer is powered OFF and ON. You should power the printer OFF and ON, if you want the settings to be used for your next print job.

Note: If you are LAN attached with the **IPDS Timeout** option set to a value other than **Host Controlled** or if you are using a coax or twinax attachment, the warning message below is displayed if changes do not take effect immediately.

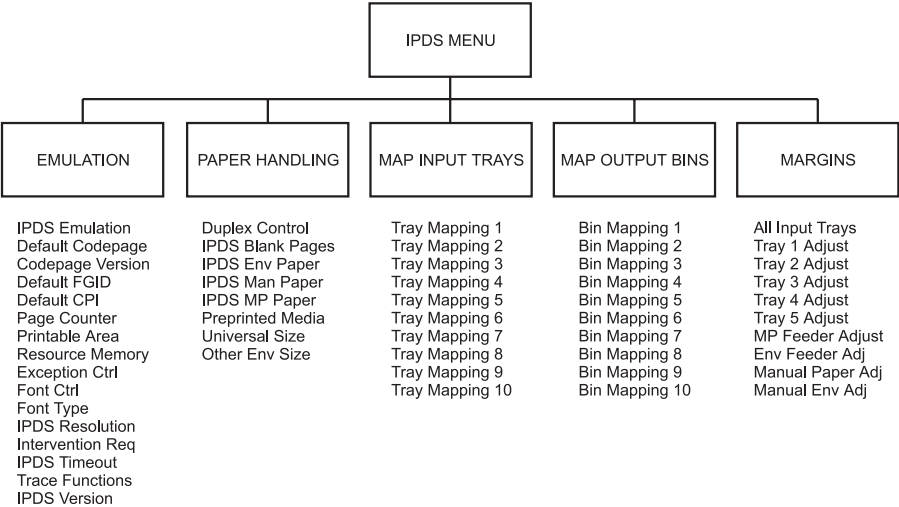
A rectangular box with a light gray background and a thin black border. Inside the box, the text "Recycle PWR to activate value" is displayed in a monospaced, typewriter-style font, centered horizontally and vertically.

Recycle PWR to
activate value

4 Setup Operations Reference

4.1 SIMM for IPDS Options Menu Map

This section describes the menu structure for the SIMM for IPDS. Settings are displayed under the sub-menus reached from the **IPDS MENU**.



Note: Only menu items supported by your printer are displayed.

Some options are only activated after the printer power has been recycled.
Refer to section 3.2.5 *Activating Saved Option Changes* on page 26.

To reach any of the sub-menus, press **Menu>** until **IPDS MENU** appears on the second line of the printer operator panel. Press **Select** to select the **IPDS MENU**.

4.2 Overview of the EMULATION Menu Options

The following lists all menu options found under the **EMULATION** Menu. Values only display when they are available on your printer.

An asterisk “*” indicates the default factory value. The selected value for each of these options is listed on the IPDS **Print Menus** page. See section 2.2 *Printing the Menu Settings* on page 13.

Option name	Values
IPDS Emulation	4028*, 3112/3116, 43xx, 3812/3816
Default Codepage	Codepages A - E Arabic 420...Estonian 1122 Codepages F - K Fin/Sweden 278...Int. Set 5 500*...Japan (Eng) 281 Codepages L - Z Latin 0 924...USA/Canada 1140
Codepage Version	Version 1*, Version 0
Default FGID	11*, refer to the option description on page 32
Default CPI	10.0*, range: 5.0 – 30.0
Page Counter	Normal Update*, Early Update
Printable Area	4028 Whole Page*, 4028 Print Page, Physical Page, Full Page
Resource Memory	Normal*, More, Less
Exception Ctrl	Report All*, Sup Beyond VPA, Sup Undef Char, Suppress Both
Font Ctrl	Relaxed*, Strict
Font Type	Use Scalable*, Use Bitmap

IPDS Resolution	600 dpi*, 1200 dpi, 300 dpi
Intervention Req	Report*, Do not report
IPDS Timeout	Host Controlled*, 15 seconds, 30 seconds, 60 seconds, 90 seconds, 2 minutes, 3 minutes, 5 minutes, 10 minutes
Trace Functions	Disable*, Serial Output, Parallel Output
IPDS Version	Display IPDS version number in the operator panel.

A detailed description of each **EMULATION** Menu option follows.

4.3 EMULATION Menu Options

In the following an asterisk “*” indicates the default factory value.

4.3.1 IPDS Emulation

This option selects the printer emulation to be used.

4028*	IBM 4028 emulation
3112/3116	IBM 3112/3116 emulation
43xx	IBM 4312, 4317 or 4324 emulation
3812/3816	IBM 3812/3816 emulation

Note: The 3812/16 emulation does not support the printer IPDS Resolution setting of 300 dpi. If 3812/16 emulation is selected and the printer IPDS Resolution setting is 300 dpi, the printer IPDS emulation ignores the 300 dpi setting and uses 600 dpi. This means, that the 240 dpi data received from the host is converted to the printer's working resolution of 600 dpi.

4.3.2 Default Codepage

This option defines the default code page with the appropriate character set to be used. Values are in alphabetical order. The panel will display code page options beginning with the letters A - E, then F - K, and L - Z. Select the appropriate path to reach the desired code page.

Codepages A – E		Codepages F – K		Codepages L – Z	
Arabic	420	Fin/Sweden	278	Latin 0	924
ASCII	367	Fin/Sweden	1143	Latin 2	870
Aus/Ger	273	Fin/Swe Alt	288	Latin 2	1110
Aus/Ger	1141	France	297	Latin 4	1069
Aus/Ger Alt	286	France	1147	OCR-A	892
Baltic	1112	Greek	423	OCR-B	893
Belgium	274	Greek	875	PC std	437
Brazil	275	Hebrew	424	Portugal	037
Can. French	260	Hebrew	803	Portugal	282
Can. French	276	Iceland	871	Publishing	361
Cyrillic	880	Iceland	1149	Spain/L. Am	284
Cyrillic	1025	Int. Set 5	500*	Spain/L. Am	1145
Den/Nor	277	Int. Set 5	1148	Spain Alt	289
Den/Nor	1142	Italy	280	Turkish [#]	905
Den/Nor Alt	287	Italy	1144	Turkish [#]	1026
Estonian	1122	Japan (Eng)	281	UK	285
				UK	1146
				USA/Canada	037
				USA/Canada	1140

[#] Supports international language Latin 5.

Note: Code pages 1140 – 1149 support the euro symbol. They are only available on IPDS code level 8223 and above.

IPDS code levels below 8223 have only two code page groups.

4.3.3 Codepage Version

This option determines which version of a code page is used. Some of the code pages are available in two versions. Some characters differ between the two versions of the same code page. If characters print differently than those entered on the keyboard, check the code page version.

Version 1* Use version 1 of appropriate code pages.

Version 0 Use version 0 of appropriate code pages.

4.3.4 Default FGID

Selects the default FGID to be used by the printer IPDS emulation when the host does not send an FGID at the start of a job. This option is only available on IPDS emulation code level 8141 or higher.

The option has three submenus containing the FGIDs used in each emulation. In the table below the emulations are cross-referenced to pages in appendix *B. Font and Code Page Information*. The FGIDs in the referenced tables are available in the operator panel.

Option name	Values
3812/3816 FGID	See page 158, 160, and 165
4028/31xx FGID	See page 156, 160, and 165
43xx FGID	See page 156, 160, and 165

The 4028/31xx and 43xx printers all use 300 pel fonts. Selecting a **Default FGID** value under the 4028/31xx menu or the 43xx menu will automatically change the **Default FGID** value of the other 300 pel emulations. The **3812/16 FGID** is not affected by the other menu selections.

11*	Default FGID for 3812/3816.
416*	Default FGID for 4028/31xx and 43xx. When using a CPI value of 10.0 FGID 416 is equal to FGID 11.

4.3.5 Default CPI

Selects the default characters per inch (CPI) to be used by the printer IPDS emulation when the host does not send a CPI value at the start of a job. The option does not apply to the fixed pitch fonts. This option is only available on IPDS emulation code level 8141 or higher.

The range is 5.0 to 30.0.

10.0*	Default CPI
--------------	-------------

4.3.6 Page Counter

This option selects the method used for updating IPDS page counters.

Normal Update* Jam and stacked page counters are updated when pages are printed.

Early Update All page counters are updated when they are processed but not printed. Pages may be lost if power or printer failure occurs. However, selecting this option may increase printing speed.

Note: When Early Update is selected, *Intervention Required* messages are not reported to the IPDS Host.

4.3.7 Printable Area

This option defines the printable area on the page and how clipping is performed. Top, bottom, and side margins for your print jobs are set through your print application.

4028 Whole Page* The printable area is 50 pels (4mm) inside the physical page. The printable area is reported to the host. Clipping occurs if data is printed outside the printable area. All four edges will clip.

4028 Print Page The printable area is 50 pels (4mm) inside the physical page. The printable area is reported to the host. If the logical page is outside the printable area it is moved down and to the right. The right and bottom edges will be clipped.

Physical Page The printable area is the physical page (edge to edge). The physical page printable area is reported to the host. With this setting active, you may need to adjust the left margin setting.

Note: Only the Optra S/Se printer can physically print edge to edge. No clipping will occur. Continual printing within 50 pels of the paper edge is not recommended. It can result in poor print quality and paper jams due to toner contamination of the paper path. All other printer models will report the physical page printable area but will clip any text printed within 50 pels of any edge.

Full Page The job is formatted for a page using a printable area, which is edge to edge. However, when the page is actually printed, the page image is compressed 2% in both the horizontal and vertical directions.

Note: *Full Page* is only available on the Optra S/Se printer models.

4.3.8 Resource Memory

This option defines the amount of memory to be used as IPDS Resource Memory. Increasing memory can sometimes improve performance because more fonts or other resources are retained in memory reducing transmission and printing times. Increasing memory for resources is recommended, if printing large IPDS jobs with many downloaded fonts, page segments, or overlays.

The actual amount of available memory depends on how much memory is being used by PostScript and PCL jobs.

- | | |
|----------------|---|
| Less | Up to 1.125MB plus 12.5% of memory above 4MB can be used as IPDS resource memory. |
| Normal* | Up to 1.25MB plus 25% of memory above 4MB can be used as IPDS resource memory. |
| More | Up to 1.5MB plus 50% of memory above 4MB can be used as IPDS resource memory. |

Note: **Resource Memory** appears as an option in the printer panel only if you have more than 4MB of installed memory.

4.3.9 Exception Control

It is often practical to suppress exception reporting on undefined characters and on position errors (printing outside the valid printable area (VPA)). This option overrides the Exception Handling Control in the IPDS data stream.

Report All*	No suppression of exceptions. Exception reporting is controlled by the IPDS data stream.
Sup beyond VPA	Exception reporting or position errors (outside VPA) is suppressed. The printer IPDS emulation will print the IPDS job but not report "08C1" printable area exceptions or "0411" bar code exceptions to the host.
Sup Undef Char	If an undefined character is found, Exception Reporting is suppressed. The printer IPDS emulation will print the IPDS job but not report "0821" undefined character exceptions to the host.
Suppress Both	Both position errors and undefined character exceptions are suppressed.

4.3.10 Font Control

This option defines how strict the reporting will be if a selected font does not correspond to a valid combination of code page and character set.

- Relaxed*** The printer makes an intelligent decision concerning whether the selected combination of code page and character set is adequately supported. A **Relaxed** setting will report very few exceptions. If the selected font is not found, the printer will substitute with the closest matching font. If a font/code page combination is selected, which is not fully supported, characters may be missing.
- Strict** A **Strict** setting reports exceptions when a requested font/code page or substituted font/code page combination is not valid. The strict setting prints all characters.

4.3.11 Font Type

This option selects the type of fonts used by the printer when a fixed pitch Courier, Prestige, or Letter Gothic Font is requested by the host.

- Use Scalable*** Use printer resident scalable fonts for Courier, Prestige, and Letter Gothic fonts when bitmap font Font IDs are received from the host.
- Use Bitmap** Use printer resident bitmap fonts for Courier, Prestige, and Letter Gothic fonts when bitmap font IDs are received from the host.

4.3.12 IPDS Resolution

This option defines the resolution used when printing IPDS jobs. This is a separate setting from the printer's **Print Resolution** under the **Quality Menu**.

This option sets the working print resolution for the IPDS jobs. This alters the quality of text with scalable fonts, barcodes, graphics, and scalable images. Bitmap fonts and non-scalable images are not affected.

600 dpi*	Print at 600 pel resolution
1200 dpi	Print at 1200 pel resolution
300 dpi	Print at 300 pel resolution

Note: The 3812/16 emulation does not support the printer IPDS Resolution setting of 300 dpi. If 3812/16 emulation is selected and the printer IPDS Resolution setting is 300 dpi, the printer IPDS emulation ignores the 300 dpi setting and uses 600 dpi. This means, that the 240 dpi data received from the host is converted to the printer's working resolution of 600 dpi.

Some jobs may not print in the standard 4MB of installed printer memory. The 300 dpi resolution uses the least amount of memory. Switch to this resolution if your job will not print in the memory installed in the printer or add additional memory. Refer to appendix *C. Recommended memory* on page 171 for minimum total recommended memory for each resolution setting. Additional memory above the total recommended may be required for printing complex pages. Additional memory may also increase print speed.

4.3.13 Intervention Required

This option defines if the emulation should report *Intervention Required* messages to the host. Types of intervention required messages include a paper jam, paper out, cover open or offline message. These types of messages mean the printer is not ready to print.

Report* Report intervention required messages to the host. This is the typical setting.

Do Not Report Do not report intervention required messages to the host. Used only in special cases.

Note: When Page Counter is set to “Early Update”, *Intervention Required* messages are not reported to the host.

4.3.14 IPDS Timeout

This option either allows the host to directly control when an IPDS LAN session with a printer ends (disconnects) or allows the printer IPDS emulation to determine when an IPDS LAN session times out.

Note: The **IPDS Timeout** values are only used by the printer IPDS emulation when the printer is LAN attached using a MarkNet internal print server.

Note: This option is only available on IPDS emulation code level 8141 or higher.

The printer is capable of receiving jobs on multiple printer ports. While the printer is busy printing jobs from one printer port, jobs on other printer ports remain in a waiting status. When the host disconnects from the printer or when the printer IPDS emulation times out, the printer automatically switches to another printer port to start a new job.

Host Controlled should be selected as the **IPDS Timeout** value when the host port value is 9100 or 9102. The printer defaults to **Host Controlled** when receiving IPDS jobs on port 9100 or 9102. **Host Controlled** or the timeout values (**15 seconds to 10 minutes**) may be used when the host port value is 9600. The host port value is specified when configuring the printer parameters on the host.

Host Controlled* The printer IPDS emulation remains active until the host disconnects from the printer. Host timer/timeout values control when the host will disconnect. When the host disconnects, the printer will print jobs from other printer ports.

Host Timer/Timeout Values and Actions: The host timer/timeout value should be set to a small value (15 to 30 seconds) so the host will quickly disconnect after an IPDS job is printed. All IPDS resources downloaded to the printer will be deleted when the host disconnects. A disabled or large host timer/timeout value will cause the printer IPDS emulation to remain active. The printer busy light will flash and IPDS will remain on the printer operator panel even though the printer has completed processing and printing the IPDS job.

15 seconds
30 seconds
60 seconds
90 seconds
2 minutes
3 minutes
5 minutes
10 minutes

IPDS emulation timeout value. These values are only used by the printer IPDS emulation when the host sends IPDS jobs on port 9600 to a MarkNet internal print server. If the host does not send another IPDS job or send additional IPDS resource data to the printer within the timeout value specified, the printer IPDS emulation will time out, place all IPDS resources in temporary storage (see *Storage of IPDS Resources* below), and allow the printer to print jobs from other printer ports.

Host Timer/Timeout Values and Actions: While the printer is printing jobs from other printer ports, the host is still connected to the printer. The host timer/timeout value should be disabled or set to a large value to prevent the host from disconnecting and deleting the resources downloaded to the printer.

Note:

- Up to four different LAN sessions may be active on port 9600. Requests for additional sessions will be ignored until the host disconnects from one of the established sessions.
- The **IPDS Timeout** values are not active when the printer is connected to a host through an Adapter for SCS card. The IPDS timeout is controlled by the Coax or Twinax timeout value on the Adapter for SCS card.
- The **IPDS Timeout** value defaults to **Host Controlled** when the printer is connected to a host through a MarkNet Pro external print server or MarkNet XLe print server. The host port value must be 9100 or 9102 to communicate with these print servers.

See *Storage of IPDS Resources* on next page for additional information.

Storage of IPDS Resources

Up to four different LAN sessions may be connected to port 9600. IPDS resources from the last active port 9600 session are temporarily stored in the printer memory when **IPDS Timeout** values (**15 seconds** to **10 Minutes**) are selected and the host timer/timeout values are set to a large value or disabled. Operator actions and processing of other jobs may cause the resources to be deleted. Events such as the following will cause deletion of the downloaded resources.

- The host ends the IPDS port 9600 session.
- TCP/IP communications is interrupted on the port 9600 session.
- Another IPDS session is started on port 9100, 9102, or 9600.
- **IPDS Menu** option values are changed.
- Processing of a non-IPDS job which requires more memory than is available in printer memory.
- **Reset Printer** is selected on the operator panel.
- The printer is powered OFF.

If the IPDS resources are deleted, the printer will return a Printer Reset exception to the host. The host will download the resources again with the next IPDS job.

4.3.15 Trace Functions

This option determines if the Trace function is enabled. Trace data is sent to either the serial or parallel port. Unless you have a computer running a capture program attached to the serial or parallel port to receive the trace data, the printer will hang *Busy* and display **IPDS** on the first line of the operator panel and **TRC** on the second line of the operator panel.

Note: The Trace function is used by service personnel for troubleshooting and service.

Disable*	Disable Trace
Serial Output	Enable serial port for output of trace data
Parallel Output	Enable parallel port for output of trace data

Note: Some Optra models do not have a serial port standard on the printer. A Tri-Port Adapter must be installed in printer option card slot one to perform serial tracing on these models.

Note: This option cannot be changed remotely.

4.3.16 IPDS Version

This option displays the current IPDS level in the second line of the operator panel. The IPDS level is also printed whenever the **Menu Settings** are printed. Refer to section 2.2 *Printing the Menu Settings* on page 13.

Note: This option cannot be changed remotely.

Note: The **IPDS Version** option is only available on IPDS code level 9241 or above.

4.4 Overview of the PAPER HANDLING Menu Options

The following lists all menu options found under the **PAPER HANDLING** Menu. Values only display when they are available on your printer. An asterisk “*” indicates the default factory value. The selected value for each of these options is listed on the **IPDS Print Menus** page. See section 2.2 *Printing the Menu Settings* on page 13.

Option name	Values
Duplex Control	Autodetect*, Enable, Disable
IPDS Blank Pages	Print*, Do Not Print
IPDS Env Paper	Prtr Setting*, 7 ¾ Envelope, 9 Envelope, 10 Envelope, DL Envelope, C5 Envelope, B5 Envelope and Other Envelope
IPDS Man Paper	Prtr Setting*, Letter, Legal, B5 (JIS), A4, Executive, A5, and Universal
IPDS MP Paper	Prtr Setting* PAPER: Letter, Legal, B5 (JIS), A4, Executive, A5, and Universal ENVELOPES: 7 ¾ Envelope, 9 Envelope, 10 Envelope, DL Envelope, C5 Envelope, B5 Envelope, and Other Envelope
Preprinted Media	Host Controlled*, Always Duplex
Universal Size	Paper Length 4200*, range: 1500 - 4200 Paper Width 2550*, range: 825 - 2703

Other Env Size

Envelope Length

4200*, range: 1500 - 4200

Envelope Width

2550*, range: 825 - 2550

A detailed description of each **PAPER HANDLING** option follows.

4.5 PAPER HANDLING Menu Options

In the following an asterisk “*” indicates the default factory value.

4.5.1 Duplex Control

This option defines the treatment of duplex printing.

Autodetect*	Use and report duplex if a duplexer is installed.
Enable	Always report duplex. If a duplexer is not installed, the pages are printed in simplex.
Disable	Do not report duplex. Pages are printed in simplex even with a duplexer installed.

4.5.2 IPDS Blank Pages

This option determines if blank pages in IPDS print jobs are printed.

Print*	Print all IPDS pages.
Do Not Print	Skip printing of blank IPDS pages. Duplex pages are skipped only if both sides are blank.

4.5.3 IPDS Envelope Paper

This option selects the envelope default formatting size for the IPDS Envelope media source (most often it is the IPDS Number 64 (40H)). This option setting applies to Input Tray Mappings set to "Manual Env" or "Env Feeder".

You can do one of the following:

- Use the printer setting Manual Env Size.
- Use the printer setting Env Feeder Size (if installed).
- Select a different envelope size from the IPDS Menu. The selection applies to both Manual Env and Env Feeder.

Selecting a specific size under the IPDS Menu will change the media size selected for the Postscript and PCL emulations, too. It is recommended that the IPDS value remain at the default of use **Prtr Setting** and the specific media size be selected under **PAPER SIZE** from the printer's **PAPER MENU**.

Prtr (printer) Setting*

Use the envelope size from the Manual Env Size or Env Feeder Size printer default setting.

7 ¾ Envelope

7 ¾ Monarch envelope paper (3.875" x 7.5")

9 Envelope

9 Commercial envelope paper (3.875" x 8.875")

10 Envelope

10 Commercial envelope paper (4.125" x 9.5")

DL Envelope

DL envelope paper (110mm x 220mm)

C5 Envelope

C5 envelope paper (162mm x 229mm)

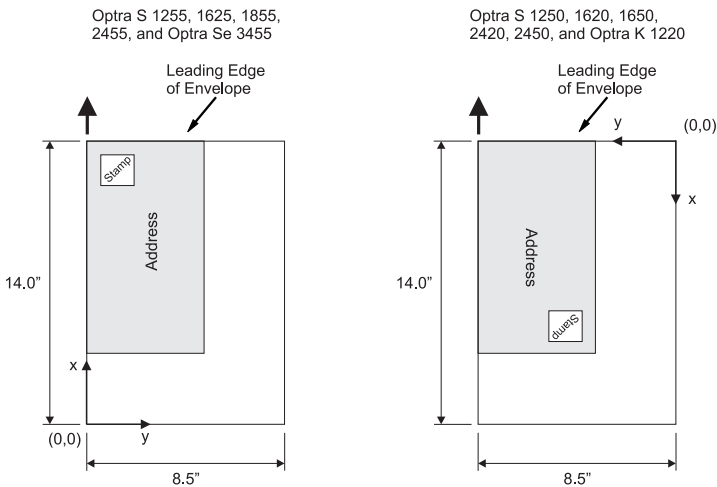
B5 Envelope

B5 envelope paper (176mm x 250mm)

Other Envelope

The **Other Envelope** setting enables the use of non-standard envelopes. The media size returned to the host is specified with IPDS menu option Other Env Size. Refer to section 4.5.8 *Other Env Size* on page 53 for more information. The default media size returned to the host is 215.9 x 355.6 mm (8.5 x 14.0 in.). The position of the printed data has to be adjusted by the host or by the print application. This is necessary as the IPDS starting position (0,0) often will be outside the physical paper. How the printed data has to be adjusted, depends on which envelope edge is printed first. Refer to the figure below matching your printer.

Note: **Other Envelope** is only available on IPDS code level 9241 or above.



If printing occurs after the length of the physical paper, the message **34 Short Paper** is displayed in the operator panel.

4.5.4 IPDS Manual Paper

This option selects the default formatting paper size for the IPDS Manual media source (most often it is the IPDS Number 99 (63H)). This option setting applies to the Input Tray Mappings set to "Manual Paper".

You can do one of the following:

- Use the printer setting "Manual Pap Size".
- Select a different paper size for IPDS.

Selecting a specific size under the IPDS Menu will change the media size selected for the Postscript and PCL emulations, too. It is recommended that the IPDS value remain at the default of use **Prtr Setting** and the specific media size be selected under **PAPER SIZE** from the printer's **PAPER MENU**.

Prtr (printer) Setting*	Use the paper size from the "Manual Pap Size" printer default setting.
Letter	Letter paper size (8.5" x 11.0")
Legal	Legal paper size (8.5" x 14.0")
B5 (JIS)	B5 (JIS) paper size (182mm x 257mm)
A4	A4 paper size (210mm x 297mm)
Executive	Executive paper size (7.25" x 10.5")
A5	A5 paper size (148mm x 210mm)
Universal	This setting allows the use of non-standard paper sizes. The media size returned to the host is specified with IPDS menu option Universal Size. Refer to section 4.5.7 <i>Universal Size</i> on page 52 for more information. The default media size returned to the host is 215.9 x 355.6 mm (8.5 x 14.0 in.). If printing occurs after the length of the physical paper, the message 34 Short Paper is displayed in the operator panel.

Note: **Universal** paper support is only available on IPDS code level 9241 and above.

4.5.5 IPDS Multipurpose (MP) Paper

This option selects the default formatting paper size or envelope default formatting size for the IPDS multipurpose (MP) media source. This option setting applies to the Input Tray Mappings set to "MP Feeder".

Note: This option only displays if a Multipurpose Feeder is installed.

You can do one of the following:

- Use the printer setting "MP Feeder Size".
- Select a different paper size or envelope size for IPDS.

Selecting a specific size under the IPDS Menu will change the media size selected for the Postscript and PCL emulations, too. It is recommended that the IPDS value remain at the default of use **Prtr Setting** and the specific media size be selected under **PAPER SIZE** from the printer's **PAPER MENU**.

Prtr (printer) Setting* Use the paper size or envelope size from the *MP Feeder Size* printer default setting.

PAPER:

Letter	Letter paper size (8.5" x 11.0")
Legal	Legal paper size (8.5" x 14.0")
B5 (JIS)	B5 (JIS) paper size (182mm x 257mm)
A4	A4 paper size (210mm x 297mm)
Executive	Executive paper size (7.25" x 10.5")
A5	A5 paper size (148mm x 210mm)
Universal	Universal is described on page 49.

ENVELOPES:

7 ¾ Envelope	7 ¾ Monarch envelope paper (3.875" x 7.5")
9 Envelope	9 Commercial envelope paper (3.875" x 8.875")
10 Envelope	10 Commercial envelope paper (4.125" x 9.5")
DL Envelope	DL envelope paper (110mm x 220mm)
C5 Envelope	C5 envelope paper (162mm x 229mm)
B5 Envelope	B5 envelope paper (176mm x 250mm)
Other Envelope	Other Envelope is described on page 47.

4.5.6 Preprinted Media

Note: The **Preprinted Media** option is only available on IPDS code level 9241 or above.

This option specifies how duplex printing from each of the physically installed trays in the printer is to be controlled. The duplex function does not apply to envelope feeders or to trays with envelopes specified as the loaded media.

The available tray menus in the **Preprinted Media** sub-menu are summarized below. The table shows all the possible tray menus.

Preprinted Media menu option	Settings
Tray 1 Duplex	Host Controlled * Always Duplex
Tray 2 Duplex	Host Controlled * Always Duplex
Tray 3 Duplex	Host Controlled * Always Duplex
Tray 4 Duplex	Host Controlled * Always Duplex
Tray 5 Duplex	Host Controlled * Always Duplex
MP Feeder Duplex	Host Controlled * Always Duplex
Man Paper Duplex	Host Controlled * Always Duplex

Only trays installed in the printer can be configured with the option. The option will only appear if a duplex unit is installed in the printer.

If the **Host Controlled** setting is selected for a tray, the host controls the duplex handling for that specific tray. This is the default setting.

The **Host Controlled** setting requires the user to know how preprinted paper, such as letterhead, is loaded in the printer. If printing in simplex, the paper has to be loaded with the preprinted side face down and the top edge of the page facing toward the front of the printer. For duplex printing the paper has to be loaded with the preprinted side face up and the top edge of the page facing toward the rear of the printer.

The **Always Duplex** setting causes all pages to be printed in duplex – even simplex pages. This increases (doubles) the simplex printing time, as the printer has to print the blank back pages also. The advantage is that preprinted paper always is loaded the

same way, i.e. with the preprinted side face up and the top edge of the page facing toward the rear of the printer.

4.5.7 Universal Size

A paper size of **Universal** is displayed in the printer menu when a non-standard size paper is detected in an auto size sensing tray or **Universal** is selected in the **IPDS PAPER HANDLING** menu as the paper size loaded into a non-size sensing tray or feeder. This option allows you to specify the paper size returned to the host when a non-standard paper size is loaded. The paper size is specified in 300 dots per inch.

Important: The default paper size value returned to the host is 215.9 x 355.6 mm (8.5 x 14.0 in.). A **34 Short Paper** error will be displayed if printing occurs past the length of the physical paper. You should specify the actual paper size to avoid this error.

Note: This option is only available on IPDS code level 9241 or above.

Menu Option	Value Range	Function
Paper Length	4200*, 1500 to 4200	Specifies Universal paper length. See note below.
Paper Width	2550*, 825 to 2703	Specifies Universal paper width. See note below.

Note: The printer paper trays and feeders are limited to feeding of specific paper sizes. The IPDS paper length and width selectable range is from the smallest to largest size paper which can be fed through the printer. Refer to your printer documentation when loading a non-standard paper size to determine if that paper size can be fed from that tray or feeder.

Conversion example:

Paper Size = 215.9 x 355.6 mm (8.5 x 14.0 in)

Paper Width = 215.9 mm / 25.4 $\frac{\text{mm}}{\text{in}}$ = 8.5 in x 300 $\frac{\text{dots}}{\text{in}}$ = 2550

Paper Length = 355.6 mm / 25.4 $\frac{\text{mm}}{\text{in}}$ = 14.0 in x 300 $\frac{\text{dots}}{\text{in}}$ = 4200

4.5.8 Other Env Size

A printer envelope size of **Other Envelope** may be selected in the printer menu or **Other Envelope** may be selected in the IPDS **PAPER HANDLING** menu when a non-standard size envelope is loaded into a non-size sensing tray or feeder. This option allows you to specify the envelope size returned to the host when **Other Envelope** is selected in the printer menu as the envelope size. Refer to section 4.5.3 *IPDS Envelope Paper* on page 47 for information on how to load envelopes in different printer models. The envelope size is specified in 300 dots per inch. See section 4.5.7 *Universal Size* on page 52 for a conversion example.

Important: The default envelope size value returned to the host is 215.9 x 355.6 mm (8.5 x 14.0 in.). A **34 Short Paper** error will be displayed if printing occurs past the length of the physical envelope. You should specify the actual envelope size to avoid this error.

Note: This option is only available on IPDS code level 9241 or above.

Menu Option	Value Range	Function
Envelope Length	4200*, 1500 to 4200	Specifies Other Envelope length. See note below.
Envelope Width	2550*, 825 to 2550	Specifies Other Envelope width. See note below.

Note: The printer trays and feeders are limited to feeding of specific envelope sizes. The IPDS envelope length and width selectable range is from the smallest to largest size envelopes which can be fed through the printer. Refer to your printer documentation when loading a non-standard envelope size to determine if that envelope size can be fed from that tray or feeder.

4.6 MAP INPUT TRAYS Menu Options

This option defines the mapping of the host's request for a physical feeder or input tray in the printer. Any host input source can be mapped to any printer input source. The printer input source is mapped to an IPDS host number. Input sources include the envelope feeder, manual feed paper or manual feed envelopes.

Note: The optional printer input sources will only be displayed when installed on the printer.

A typical relationship between IPDS numbers and the input sources would be:

Tray Map No.*	Printer Input Source Value	IPDS Number
Tray Mapping 1	Tray 1	0
Tray Mapping 2	Tray 2	1
Tray Mapping 3	Tray 3	2
Tray Mapping 4	Tray 4	3
Tray Mapping 5	Tray 5	4
Tray Mapping 6	Envelopes (Feeder)	64 (40H)
Tray Mapping 7	Envelopes (Manual)	64 (40H)
Tray Mapping 8	Manual Paper	99 (63H)
Tray Mapping 9	No Map	-
Tray Mapping 10	No Map	-

* The labels Tray Mapping 1 - Tray Mapping 10 refer to the *number* of the mapping, not the physical tray.

Example 1

You may want to use one of the higher capacity input trays for IPDS **0**. To swap the IPDS number for Tray 1 and Tray 2, you will need to do the following:

1. Set **Tray Mapping 2** for **Tray 2** to IPDS **0**.
2. Set **Tray Mapping 1** for **Tray 1** to IPDS **1**.

This will give you:

Tray Mapping 1	=	IPDS 1 mapped to Tray 1
Tray Mapping 2	=	IPDS 0 mapped to Tray 2

Example 2

If an IPDS number is mapped (used) twice, the lowest tray mapping number is activated (if available). For example if Tray Mapping 6 and 7 both map to IPDS 64 as shown below, the printer will select media from the Env Feeder.

Tray Mapping 6	IPDS 64 Env Feeder
Tray Mapping 7	IPDS 64 Manual Env

In other words, the printer attempts to map to (select media from) the Env Feeder first and if it is not installed, the printer defaults to Manual Env.

Example 3

To link multiple input trays as one big input tray, you need to make changes under the printer's **PAPER MENU**. You need to set the **PAPER SIZE** and **PAPER TYPE** for each of the trays you want to link to the same value.

For example, the host expects colored paper in Tray 1 and you want to link Tray 2 and Tray 3, which have plain paper. Do the following:

Leave the **MAP INPUT TRAYS** at their defaults:

Tray Mapping 1	=	IPDS 0 mapped to Tray 1
Tray Mapping 2	=	IPDS 1 mapped to Tray 2

Insert letter-size colored paper in Tray 1. Insert letter-size plain paper in Trays 2 and 3.

The paper size is detected by the printer:

Tray 1 Size	=	Letter
Tray 2 Size	=	Letter
Tray 3 Size	=	Letter

Set the PAPER TYPE for the three trays as follows:

Tray 1 Type	=	Colored Paper
Tray 2 Type	=	Plain Paper
Tray 3 Type	=	Plain Paper

The printer will feed paper from Tray 3 when Tray 2 is empty.

4.6.1 Tray Mapping

In the following an asterisk “*” indicates the default factory value. The default value for each of these options is listed on the IPDS **Print Menus** page. See section 2.2 *Printing the Menu Settings* on page 13.

Note: Values which are not available on your printer will not be displayed.

Option name	Values
Tray Mapping 1	No Map, Tray 1*, Tray 2, Tray 3, Tray 4, Tray 5, MP Feeder, Env Feeder, Manual Paper, Manual Env IPDS Number 0*, 0 to 255
Tray Mapping 2	No Map, Tray 1, Tray 2*, Tray 3, Tray 4, Tray 5, MP Feeder, Env Feeder, Manual Paper, Manual Env IPDS Number 1*, 0 to 255
Tray Mapping 3	No Map, Tray 1, Tray 2, Tray 3*, Tray 4, Tray 5, MP Feeder, Env Feeder, Manual Paper, Manual Env IPDS Number 2*, 0 to 255
Tray Mapping 4	No Map, Tray 1, Tray 2, Tray 3, Tray 4*, Tray 5, MP Feeder, Env Feeder, Manual Paper, Manual Env IPDS Number 3*, 0 to 255

Tray Mapping 5	No Map, Tray 1, Tray 2, Tray 3, Tray 4, Tray 5*, MP Feeder, Env Feeder, Manual Paper, Manual Env IPDS Number 4*, 0 to 255
Tray Mapping 6	No Map, Tray 1, Tray 2, Tray 3, Tray 4, Tray 5, MP Feeder, Env Feeder*, Manual Paper, Manual Env IPDS Number 64*, 0 to 255
Tray Mapping 7	No Map, Tray 1, Tray 2, Tray 3, Tray 4, Tray 5, MP Feeder, Env Feeder, Manual Paper, Manual Env* IPDS Number 64*, 0 to 255
Tray Mapping 8	No Map, Tray 1, Tray 2, Tray 3, Tray 4, Tray 5, MP Feeder, Env Feeder, Manual Paper*, Manual Env IPDS Number 99*, 0 to 255
Tray Mapping 9	No Map*, Tray 1, Tray 2, Tray 3, Tray 4, Tray 5, MP Feeder, Env Feeder, Manual Paper, Manual Env IPDS Number X, 0 to 255
Tray Mapping 10	No Map*, Tray 1, Tray 2, Tray 3, Tray 4, Tray 5, MP Feeder, Env Feeder, Manual Paper, Manual Env IPDS Number X, 0 to 255

4.7 MAP OUTPUT BINS Menu Options

This option defines the mapping of the host's request for a physical output bin in the printer. The printer bin is mapped to an IPDS host number. Printer output bins include the top of the printer (standard bin) and optional output bins that attach to the top of the printer.

If an IPDS number is mapped (used) twice, the lowest bin mapping (if available) is used.

A typical relationship between IPDS numbers and the output bins would be:

Bin Mapping No.*	Printer Output Bin Value	IPDS Number
Bin Mapping 1	Standard Bin	1
Bin Mapping 2	Bin 1	2
Bin Mapping 3	Bin 2	3
Bin Mapping 4	Bin 3	4
Bin Mapping 5	No Map	-
Bin Mapping 6	No Map	-
Bin Mapping 7	No Map	-
Bin Mapping 8	No Map	-
Bin Mapping 9	No Map	-
Bin Mapping 10	No Map	-

* The labels *Bin Mapping 1- Bin Mapping 10* refer to the *number* of the mapping, not the physical output bin.

4.7.1 Bin Mapping

Note: Output Bin values will only be displayed when optional output bins are installed.

In the following an asterisk “*” indicates the default factory value. The default value for each of these options is listed on the second **Print Menus** page. See section 2.3 *Installing the SIMM for IPDS* on page 17, step 14.

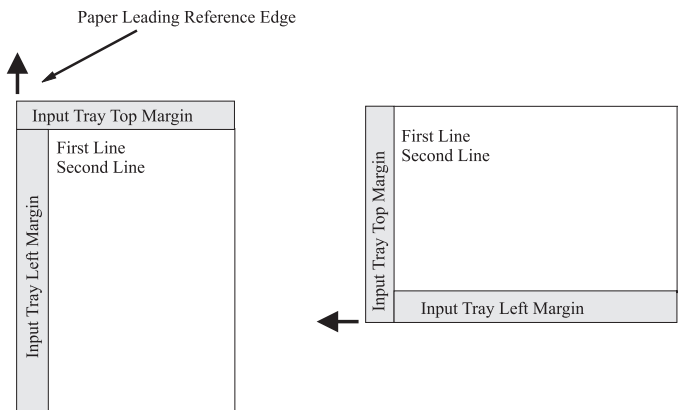
Option name	Values
Bin Mapping 1	Standard Bin*, No Map, Output Bin 1, Output Bin 2, Output Bin 3 IPDS Number 1*, 1 to 255
Bin Mapping 2	Standard Bin, No Map, Output Bin 1*, Output Bin 2, Output Bin 3 IPDS Number 2*, 1 to 255
Bin Mapping 3	Standard Bin, No Map, Output Bin 1, Output Bin 2*, Output Bin 3 IPDS Number 3*, 1 to 255
Bin Mapping 4	Standard Bin, No Map, Output Bin 1, Output Bin 2, Output Bin 3* IPDS Number 4*, 1 to 255
Bin Mapping 5	Standard Bin, No Map*, Output Bin 1, Output Bin 2, Output Bin 3 IPDS Number X, 1 to 255

Bin Mapping 6	Standard Bin, No Map*, Output Bin 1, Output Bin 2, Output Bin 3 IPDS Number X, 1 to 255
Bin Mapping 7	Standard Bin, No Map*, Output Bin 1, Output Bin 2, Output Bin 3 IPDS Number X, 1 to 255
Bin Mapping 8	Standard Bin, No Map*, Output Bin 1, Output Bin 2, Output Bin 3 IPDS Number X, 1 to 255
Bin Mapping 9	Standard Bin, No Map*, Output Bin 1, Output Bin 2, Output Bin 3 IPDS Number X, 1 to 255
Bin Mapping 10	Standard Bin, No Map*, Output Bin 1, Output Bin 2, Output Bin 3 IPDS Number X, 1 to 255

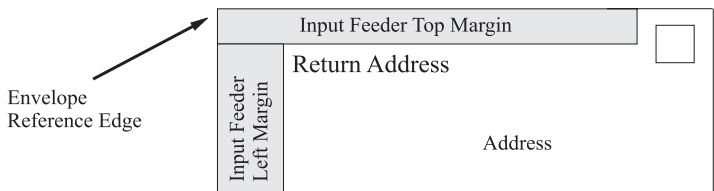
4.8 MARGINS Menu Options

Use margin settings to adjust the position of the page image. Margin settings, which could be compared to movements of the tractor feeder and paper knob of a matrix printer, affect all IPDS jobs and are not affected by IPDS commands in the job.

The input tray **Left Margin** and input tray **Top Margin** option settings should not be confused with the IPDS left and top margin settings sent from the host. Input tray **Left Margin** settings adjust the page image left or right in relation to the paper leading reference edge as it is fed through the printer. Input tray **Top Margin** settings adjust the page image up or down in relation to the paper leading reference edge as it is fed through the printer.



The input feeder **Left Margin** and input tray **Top Margin** option settings should not be confused with the IPDS left and top margin settings sent from the host. Input feeder **Left Margin** settings adjust the page image left or right in relation to the envelope reference edge as it is fed through the printer. Input feeder **Top Margin** settings adjust the page image up or down in relation to the envelope reference edge as it is fed through the printer.



Margins may be adjusted for all input trays and feeders using the **All Input Trays** menu. Additional adjustments may be made to the **All Input Trays** margin settings for an individual tray or feeder using the tray or feeder specific margin menu. Most often, the **All Input Trays** margin settings will remain at the default setting of zero and adjustments will be made using the specific tray or feeder margin menu. The **All Input Trays** margin adjustment PLUS the specific tray or feeder margin adjustment determines the total margin adjustment for a specific tray or feeder.

Margin Adjustment = All Input Trays setting + Specific Tray / Feeder Setting

The SIMM for IPDS is limited by the printer's printable area. The **Margins** menu may be used to adjust page images outside the valid printable area. The page image will be clipped. Valid Printable Area (VPA) exception conditions will not be reported to the host.

Margin adjustments are in 1/300ths of an inch.

Note: The **Margins** menu is only available on IPDS code level 8223 and above.

Example 1 – Margins

The **All Input Tray Left Margin** is set to the default of **0**. The **Tray 1 Adjust Left Margin** is set to **+25**. This adjusts the page image left margin for all pages printed from tray 1 by 25/300ths of an inch to the right of the margin specified in the IPDS job.

Example 2 – Margins

The **All Input Tray Left Margin** has been adjusted to **-25**. This moves the left margin for pages printed for all IPDS jobs 25/300ths of an inch to the left. The **Tray 1 Adjust Left Margin** has been adjusted to **+25**. For tray 1, the additional **Tray 1 Adjust Left Margin** value will also be used to adjust the left margin. The tray 1 left margin adjustment will be zero for pages printed from tray 1. The **All Input Trays Left Margin** adjustment PLUS the **Tray 1 Adjust Left Margin** adjustment equals the total left margin adjustment. {-25 pels +25 pels = 0 adjustment}

Margin and Tray Linking Interaction

When trays are linked, the margins set in the **All Input Trays** menu and the margins set for the tray specified in the IPDS data stream will be used to adjust the page image on the paper

Example 1 – Margin and Tray Linking

Tray 1 is requested as the input source from the host. If tray 1 and tray 2 are linked and tray 1 runs out of paper, paper will be pulled from tray 2. The margin adjustments applied when printing from tray 2 will be the **All Input Trays** margins PLUS the **Tray 1 Adjust** margins set for the requested IPDS input source (tray 1).

Example 2 – Margin and Tray Linking

Tray 2 is requested as the input source from the host. If tray 1 and tray 2 are linked and tray 2 runs out of paper, paper will be pulled from tray 1. The margin adjustments applied when printing from tray 1 will be the **All Input Trays** margins PLUS the **Tray 2 Adjust** margins set for the requested IPDS input source (tray 2).

Example 3 – Margin and Tray Linking

Tray 2 is requested as the input source from the host. If tray 2, tray 3, and tray 4 are linked and tray 2 runs out of paper, paper will be pulled from tray 3 until it is empty and then from tray 4. The margin adjustments applied when printing from tray 3 or tray 4 will be the **All Input Trays** margins PLUS the **Tray 2 Adjust** margins set for the requested IPDS input source (tray 2).

Margin and Tray Mapping Interaction

When the host's IPDS Number has been mapped to another input source using the **Tray Mapping** option, the value of the **Tray Mapping** option will determine the margin adjustment applied to pages printed from the selected tray.

Example – Margin and Tray Mapping

The host input source IPDS Number 1 normally selects the printer physical tray 2. If IPDS Number 1 has been mapped to **Tray 1**, the **Tray 1 Adjust** margin values will be applied to all pages in a job which have tray 2 specified as the input source.

Each margin menu option has four sub-menus. The exception being the envelope menu options, which have only two. The available margin menu options and their sub-menus are shown below.

Margin menu option	Top Margin	Left Margin	Top Margin Back	Left Margin Back
ALL INPUT TRAYS	x	x	x	x
TRAY 1 ADJUST	x	x	x	x
TRAY 2 ADJUST	x	x	x	x
TRAY 3 ADJUST	x	x	x	x
TRAY 4 ADJUST	x	x	x	x
TRAY 5 ADJUST	x	x	x	x
MP FEEDER ADJUST	x	x	x	x
ENV FEEDER ADJ	x	x		
MANUAL PAPER ADJ	x	x	x	x
MANUAL ENV ADJ	x	x		

The following sections describe each of the margin menu options.

4.8.1 ALL INPUT TRAYS Menu

This menu option allows the top and left margins for simplex and duplex pages to be adjusted. Margin settings of this menu option apply to pages printed from any tray or feeder. Adjustments to the **All Input Tray** margin settings can be made by adjusting the individual margin settings for a specific tray or feeder. Negative values indicate a decrease in the margin value from the default margin of zero.

Intermediate Menu	Value	Function Performed
Left Margin	0*, -127 to 127	Adjusts the page front side left margin for pages printed from all input trays and feeders.
Top Margin	0*, -127 to 127	Adjusts the page front side top margin for pages printed from all input trays and feeders.
Left Margin Back	0*, -127 to 127	Adjusts the duplex page back side left margin for pages printed from all input trays and feeders.
Top Margin Back	0*, -127 to 127	Adjusts the duplex page back side top margin for pages printed from all input trays and feeders.

4.8.2 TRAY 1 ADJUST Menu

This menu option allows additional adjustment to the top and left margins for simplex and duplex pages printed from tray 1. **Tray 1 Adjust** margin settings adjusts the value of the **All Input Trays** corresponding margin setting for all pages printed from tray 1.

See margin settings examples under *4.8 MARGINS Menu Options* on page 61 for additional information.

Intermediate Menu	Value	Function Performed
Left Margin	0*, -127 to 127	Adjusts the page front side left margin for pages printed from tray 1.
Top Margin	0*, -127 to 127	Adjusts the page front side top margin for pages printed from tray 1.
Left Margin Back	0*, -127 to 127	Adjusts the duplex page back side left margin for pages printed from tray 1.
Top Margin Back	0*, -127 to 127	Adjusts the duplex page back side top margin for pages printed from tray 1.

4.8.3 TRAY 2 ADJUST Menu

This menu option allows additional adjustment to the top and left margins for simplex and duplex pages printed from tray 2. **Tray 2 Adjust** margin settings adjusts the value of the **All Input Trays** corresponding margin setting for all pages printed from tray 2.

See margin settings examples under *4.8 MARGINS Menu Options* on page 61 for additional information.

Intermediate Menu	Value	Function Performed
Left Margin	0*, -127 to 127	Adjusts the page front side left margin for pages printed from tray 2.
Top Margin	0*, -127 to 127	Adjusts the page front side top margin for pages printed from tray 2.
Left Margin Back	0*, -127 to 127	Adjusts the duplex page back side left margin for pages printed from tray 2.
Top Margin Back	0*, -127 to 127	Adjusts the duplex page back side top margin for pages printed from tray 2.

4.8.4 TRAY 3 ADJUST Menu

This menu option allows additional adjustment to the top and left margins for simplex and duplex pages printed from tray 3. **Tray 3 Adjust** margin settings adjusts the value of the **All Input Trays** corresponding margin setting for all pages printed from tray 3.

See margin settings examples under *4.8 MARGINS Menu Options* on page 61 for additional information.

Intermediate Menu	Value	Function Performed
Left Margin	0*, -127 to 127	Adjusts the page front side left margin for pages printed from tray 3.
Top Margin	0*, -127 to 127	Adjusts the page front side top margin for pages printed from tray 3.
Left Margin Back	0*, -127 to 127	Adjusts the duplex page back side left margin for pages printed from tray 3.
Top Margin Back	0*, -127 to 127	Adjusts the duplex page back side top margin for pages printed from tray 3.

4.8.5 TRAY 4 ADJUST Menu

This menu option allows additional adjustment to the top and left margins for simplex and duplex pages printed from tray 4. **Tray 4 Adjust** margin settings adjusts the value of the **All Input Trays** corresponding margin setting for all pages printed from tray 4.

See margin settings examples under *4.8 MARGINS Menu Options* on page 61 for additional information.

Intermediate Menu	Value	Function Performed
Left Margin	0*, -127 to 127	Adjusts the page front side left margin for pages printed from tray 4.
Top Margin	0*, -127 to 127	Adjusts the page front side top margin for pages printed from tray 4.
Left Margin Back	0*, -127 to 127	Adjusts the duplex page back side left margin for pages printed from tray 4.
Top Margin Back	0*, -127 to 127	Adjusts the duplex page back side top margin for pages printed from tray 4.

4.8.6 TRAY 5 ADJUST Menu

This menu option allows additional adjustment to the top and left margins for simplex and duplex pages printed from tray 5. **Tray 5 Adjust** margin settings adjusts the value of the **All Input Trays** corresponding margin setting for all pages printed from tray 5.

See margin settings examples under *4.8 MARGINS Menu Options* on page 61 for additional information.

Intermediate Menu	Value	Function Performed
Left Margin	0*, -127 to 127	Adjusts the page front side left margin for pages printed from tray 5.
Top Margin	0*, -127 to 127	Adjusts the page front side top margin for pages printed from tray 5.
Left Margin Back	0*, -127 to 127	Adjusts the duplex page back side left margin for pages printed from tray 5.
Top Margin Back	0*, -127 to 127	Adjusts the duplex page back side top margin for pages printed from tray 5.

4.8.7 MP FEEDER ADJUST Menu

This menu option allows additional adjustment to the top and left margins for simplex and duplex pages printed from the multipurpose feeder. **MP Feeder Adjust** margin settings adjusts the value of the **All Input Trays** corresponding margin setting for all pages printed from the MP feeder.

See margin settings examples under *4.8 MARGINS Menu Options* on page 61 for additional information.

Intermediate Menu	Value	Function Performed
Left Margin	0*, -127 to 127	Adjusts the page front side left margin for pages printed from the MP feeder.
Top Margin	0*, -127 to 127	Adjusts the page front side top margin for pages printed from the MP feeder.
Left Margin Back	0*, -127 to 127	Adjusts the duplex page back side left margin for pages printed from the MP feeder.
Top Margin Back	0*, -127 to 127	Adjusts the duplex page back side top margin for pages printed from the MP feeder.

4.8.8 ENV FEEDER ADJ Menu

This menu option allows additional adjustment to the top and left margins for jobs printed from the envelope feeder. **Env Feeder Adj** margin settings adjusts the value of the **All Input Trays** corresponding margin setting for all pages printed from the envelope feeder.

See margin settings examples under *4.8 MARGINS Menu Options* on page 61 for additional information.

Intermediate Menu	Value	Function Performed
Left Margin	0*, -127 to 127	Adjusts the page front side left margin for envelopes printed from the envelope feeder.
Top Margin	0*, -127 to 127	Adjusts the page front side top margin for envelopes printed from the envelope feeder.

4.8.9 MANUAL PAPER ADJ Menu

This menu option allows additional adjustment to the top and left margins for simplex and duplex pages printed from the manual tray. **Manual Paper Adj** margin settings adjusts the value of the **All Input Trays** corresponding margin setting for all pages printed from the manual tray.

See margin settings examples under *4.8 MARGINS Menu Options* on page 61 for additional information.

Intermediate Menu	Value	Function Performed
Left Margin	0*, -127 to 127	Adjusts the page front side left margin for pages printed from the manual tray.
Top Margin	0*, -127 to 127	Adjusts the page front side top margin for pages printed from the manual tray.
Left Margin Back	0*, -127 to 127	Adjusts the duplex page back side left margin for pages printed from the manual tray.
Top Margin Back	0*, -127 to 127	Adjusts the duplex page back side top margin for pages printed from the manual tray.

4.8.10 MANUAL ENV ADJ Menu

This menu option allows additional adjustment to the top and left margins for jobs printed from the manual tray. **Manual Env Adj** margin settings adjusts the value of the **All Input Trays** corresponding margin setting for all envelopes printed from the manual tray.

See margin settings examples under *4.8 MARGINS Menu Options* on page 61 for additional information.

Intermediate Menu	Value	Function Performed
Left Margin	0*, -127 to 127	Adjusts the page front side left margin for envelopes printed from the manual tray.
Top Margin	0*, -127 to 127	Adjusts the page front side top margin for envelopes printed from the manual tray.

5 IPDS Job Cancel

The IPDS cancel function allows IPDS jobs to be canceled at the printer. Selecting a specific job to cancel is difficult when several small jobs are queued to print from the host. The job being printed may not be the job which is canceled. The cancel request is returned to the host on the earliest possible page boundary. If all pages of a job have been processed and stored in the printer's memory, that job will not be canceled.

The IPDS cancel function may only be selected when an IPDS session is established with a host. The IPDS cancel function will not be displayed during certain intervention required conditions on the printer. The intervention must be cleared before the job can be canceled.

The IPDS cancel function is only available on IPDS code level 8491 (or greater).

When attached to a host via Twinax, the Adapter for SCS must have Twinax code level H02-8471 or greater for Cancel to be reported to the host. The message **Cancel Not Supported** will be displayed if the Adapter for SCS does not support the cancel function.

5.1 Canceling an IPDS Job

To cancel when IPDS appears on the display, press **Stop**, **Stop**, **Select**, and **Go**. An explanation of what will occur with each key press follows.

1. Press **Stop**.

- The printer displays **Not Ready** and continues to clear all paper from the paper path. The printer stops receiving and processing data from the host. You may proceed to Step 2 before the printer clears the paper path.

2. Press **Stop** again.

- The message **Press Select to Cancel IPDS Job** is displayed.
- The message **Press Select to Cancel IPDS Job** will not display during certain intervention required messages. You must clear the printer intervention first.

- Some events on the printer may cause the message **Press Select to Cancel IPDS Job** to be removed from the display. If the message is removed, press **Go** and then perform a cancel job sequence by performing steps 1 through 4.

3. Press **Select**.

- The message **Canceling Job - Press Go** is displayed. The cancel request is queued and will be sent to the host on the earliest possible page boundary. If all pages have been processed into the printer's memory and the IPDS session is ended before additional job data is received, the cancel request is ignored.

4. Press **Go**.

- The **Canceling Job** message is displayed and the printer resumes receiving and processing data from the host. Pages already processed and stored in memory are printed. Several pages may print.
- A cancel request will be sent to the host on the earliest possible page boundary. The printer beeps and briefly displays the **Sending Cancel** message when the cancel is sent to the host. The host cancels the job and the next job on the host queue will be sent to the printer. (Note: The actual host action is dependent on host settings.) IPDS resources are saved by the printer unless the host requests deletion of these resources.
- Attempts to perform a cancel request while the **Canceling Job** message is displayed will cause the message **Cancel Pending – Press Go** to display on the operator panel. Press **Go** to continue.

5.2 Aborting a Cancel Request

When the **Canceling Job** message is displayed, a cancel request may be aborted by pressing the **Return** button. The message **Cancel Aborted** will be displayed briefly. The cancel request will not be sent to the host. The printer IPDS emulation continues to process pages received from the host.

6 Remote Configuration of Printer IPDS Settings

Most IPDS emulation settings stored in the printer (the default IPDS settings) can be changed remotely by sending a special IPDS text job to the printer. This method of changing settings is useful during printer installation to set the IPDS option settings to the values recommended by your system administrator. At a later time, if it is determined by your system administrator that an option setting should be changed, the setting may be changed easily on a single printer or all installed printers.

6.1 Settings That Require Operator Intervention

Two option setting changes may require operator intervention at the printer. Operator intervention to power OFF and power ON the printer is required so the host will recognize the changes. The message **Recycle PWR to activate value** may be displayed on the printer operator panel when the following option settings are changed.

IPDS Emulation	Changing to the IBM 3812/16 emulation (240 dpi) from a 4028, 43xx, or 3112/16 emulation (300 dpi) or changing from a 4028, 43xx, or 3112/16 emulation to the IBM 3812/16 emulation, displays the message Recycle PWR to activate value and halts the printer. Changing between 4028, 43xx, or 3112/16 emulations does not require recycling of the printer power.
Duplex Control	Setting this option to a new value causes the message Recycle PWR to activate value to be displayed and halts the printer.

6.2 Option Values Which Can Not Be Changed Remotely

The following IPDS options can not be changed remotely.

Trace Functions
IPDS Version

6.3 Remote Configuration Using an IPDS Text Job

Most IPDS emulation default option settings stored in the printer can be changed on LAN, Coax, and Twinax attached printers by sending a special IPDS text job to the printer. Only the IPDS emulation default option settings can be changed using a text job. Other printer emulation (PostScript and PCL) default option settings can not be changed. Refer to section 6.2 *Option Values Which Can Not Be Changed Remotely* on page 73 for more information. Some IPDS option setting changes require operator intervention. Refer to section 6.1 *Settings That Require Operator Intervention* on page 73 for more information.

The IPDS emulation continually searches IPDS text jobs for two special command strings. When the string `&%IPDSSETOPT;` is found, the IPDS emulation enters a remote set options mode. Job text is searched for option and value strings which are the same as the option and value strings displayed on the printer operator panel. The option and value strings are entered at the host as normal text and are sent to the printer like any other IPDS text job. Valid value strings change the IPDS option value and store the new value as a permanent IPDS option setting. When the string `&%` is found, the IPDS emulation ends processing option and values strings and a page is printed showing all changed values and errors for invalid value strings. The IPDS emulation will also end option and value string processing when detecting some intervention conditions.

6.3.1 AS/400 Recommended Procedure

The IPDS session must be closed after the text job has been sent to the printer to activate the new IPDS option settings. The changes take effect during the next established IPDS session.

The following steps are recommended to remotely change the printer IPDS option settings.

1. End all writers associated with the printer except the writer to be used to send the text job.
2. Hold all print jobs in the printer job queue to be used to print the option setting changes.
3. Print the text job with the option setting changes.
4. End the IPDS session with the printer so the option changes will be activated during the next IPDS session. "Vary Off" the printer for locally attached devices and end the writer for LAN attached printers to end the IPDS session.
5. Review the IPDS Option Change Status page which was printed for any errors.
6. Recycle the printer power if the operator panel displays the message **Recycle PWR to activate value**. This is displayed if the IPDS emulation or the duplex setting was changed. See section *6.1 Settings That Require Operator Intervention* on page 73 for more information.
7. Print a Print Menus page and review the IPDS default settings to be sure they have been set correctly.
8. Release queues held in step 1.

6.3.2 Mainframe Recommended Procedure

The IPDS session must be closed after the text job has been sent to the printer to activate the new IPDS default settings. The changes take effect during the next established IPDS session. Changing some options may generate a reset message or a configuration change message on the host when restarting from a timed out session.

The following steps are recommended to remotely change the printer IPDS option settings.

1. Drain the printer in JES for any queues assigned to the printer to allow any pre-selected jobs to complete printing.
2. Place all print jobs on hold for the printer queue to which you will submit the text job.
3. Submit the text job with the option setting changes.
4. Start the printer in JES so the text job can print.
5. Drain the printer to end the IPDS session so the option changes will be activated during the next IPDS session.
6. Review the IPDS Option Change Status page which was printed for any errors.
7. Recycle the printer power if the operator panel displays the message **Recycle PWR to activate value**. This is displayed if the IPDS emulation or the duplex setting was changed. See section *6.1 Settings That Require Operator Intervention* on page 73 for more information.
8. Print a Print Menus page and review the IPDS default settings to verify they were set correctly.
9. Release all held print jobs assigned to this printer in the JES output queue.

6.3.3 Creating a Text Job to Change IPDS Option Settings

Host text processing applications may be used to create the IPDS text job to be sent to the printer. A few rules must be followed to create the text. These rules are explained below and in the following sections.

- Text must be in EBCDIC encoding. The text characters are available in all normal EBCDIC code pages. Special code pages and fonts like OCR and APL should be avoided.
- All movement, spaces, tabs, line feeds, carriage returns, etc. are ignored in the text strings. This means that spaces and line breaks etc. have no influence and can be omitted.

- Both lower and upper case letters can be used for options and values. The case of each option or value does not have to match the operator panel.

6.3.3.1 Lead-in String

The text string below is the *Lead-in string* which causes the IPDS emulation to enter an IPDS set option mode. This must be the first line of the of the job. It is devised so that it should not occur in normal print data.

```
&%IPDSSSETOPT;
```

The following string is also valid, as the spaces are ignored.

```
&% IPDS SETOPT;
```

Refer to example text job on page 82 to see how the lead-in string is specified in the text job.

6.3.3.2 Lead-out String

The *Lead-out string* below terminates the IPDS emulation set option mode. This string must always be the last line of the job. The Lead-out string is always recognized even if it occurs in the middle of an option name or value. A lead-in lead-out sequence can span several pages. Closing an IPDS session will terminate the set options mode. It is recommended that all the option changes be limited to one page.

```
&%
```

Important: If the above string is not entered in the job containing the IPDS default option changes to end the IPDS set option mode, other jobs on the queue will not be processed correctly.

Refer to example text job on page 82 to see how the lead-out string is specified in the text job.

6.3.3.3 Entering Option Name and Value Settings

The text for specifying Option Name and Value Settings is based on the text appearing in the printer operator panel. Most option names are unique and occur only once. For these options it is possible to use the syntax shown below.

```
Option Name = Value;
```

The *Option Name* and *Value* must be separated with an equal sign and the *Value* must be followed by a semicolon. The wording and spelling of the *Option Names* and *Values* are identical to the text found in the operator panel. Spaces used in the operator panel option text are optional and are ignored. The option and value string case does not have to match the operator panel.

For some options, a menu identifier needs to be specified. An example is the **Top Margin** setting which occurs in both the **All Input Trays** and the **Tray 1 Adjust** sub-menus under the **Margins** menu. Setting this and similar options is done by specifying the sub-menu before the *Option Name*. A colon is used to separate the two. The sample sequences below show how the **Top Margin** in the **Tray 1 Adjust** sub-menu can be changed.

```
Margins: Tray 1 Adjust: Top Margin = 20;
```

Or

```
Tray 1 Adjust: Top Margin = 20;
```

The general syntax text string is:

```
Menu Name: Sub-Menu Name: Option Name = Value;
```

It is recommended to precede all *Option Names* with the full menu path. This minimizes confusion and increases compatibility with possible future IPDS options.

Some options use an extended syntax. This applies to the options in the **MAP INPUT TRAYS** and the **MAP OUTPUT BIN** menus. Each of the mapping options needs two values when configured. When two values are required, they are separated by a comma. Two valid samples are shown below.

```
Map Input Trays: Tray Mapping 1 = Tray1, 2;
```

Or

```
TrayMapping 1=Tray 1,2;
```

The example assigns the IPDS logical paper source number 2 with Tray 1.

6.3.3.4 Entering Comments in the Job

Comments may be entered in the job text. The beginning of a comment is marked with the start characters (/*) and terminated with the end characters (*). See the sample comment below.

```
IpdsEmulation=4028; /* Sample comment */
```

6.3.3.5 Syntax summary and hints

- A semicolon must end all option assignments.
- When two values are required, they must be separated by commas.
- Both lower and upper case letters can be used for options and values. Thus, the case does not have to match the operator panel.
- Space characters are ignored and are optional.
- Line feed controls are ignored. These should be used to prevent the text from printing off the edge of the page.
- Always use an EBCDIC code page. Special code pages such as APL and OCR should not be used.
- Comments are allowed. They have to be bracketed by the start characters /* and the end characters */.

6.3.3.6 Examples of legal commands

The following are examples of legal commands which will be processed by the printer IPDS emulation and will change the IPDS option value setting.

```
IpdsEmulation=4028; /* Sample comment */  
EMULATION: IPDS Emulation = 3112/3116;  
Emulation:ipdsemulation=4028;defaultcodepage=Fin/Sweden278;  
Margins:Tray1Adjust:Top Margin = 20;  
Tray 2 Adjust:Left Margin = -10;  
Tray1Adjust:RightMargin=+10;  
Bin Mapping 4 = Output Bin 2,3;
```

6.3.3.7 Examples of illegal commands

The following are examples of illegal commands which will be processed by the printer IPDS emulation and cause an error message to be printed.

Top Margin = 20;	This applies to several Top Margin options.
Emulation:DuplexControl=Enable;	Duplex control is not in the Emulation menu.
IPDS Emulation = 3112;	The full value name 3112/3116 must be used.

6.3.3.8 Set Default Options Mode Error Messages

An option change status page is printed after each page with received changes. An option change status page is also printed if a page break is detected before a full page with changes has been received. Valid option value text strings are printed. Error messages are printed for invalid option value text strings to assist in correcting the text string. The list below shows error messages that appear on the *IPDS Option Change Status* page.

“Duplicate Option Name”	More than one menu option matches the name. Please specify the full menu path.
“Illegal Number”	The specified option value’s type is wrong. Please specify the correct type.
“Invalid Option Syntax”	The option syntax is invalid.
“Invalid Value”	The value following the equal sign is invalid or missing. Enter the value or enter a valid value for the option.
“Missing Menu before :”	The menu identifier is missing. Please put the name of the menu, which contains the option, before the colon.
“Option not Allowed”	An attempt was made to change an option which can not be changed remotely. The setting is ignored.
“Syntax Error”	This indicates a violation of the IPDS syntax.
"Too many errors - listing stopped"	Too many errors were detected to fit on the option change status page. No more than 25 errors are printed on the status page.
"Too many options changed - listing stopped"	Not all options changed have been recorded on the option change status page. Print a menu page to verify option settings.
“Too Many Values”	The specified number of values used to set an option does not match the syntax. Please specify the correct number of values.

“Two Values Required”	One value is missing. Please specify two values according to syntax. An example of an option requiring two values is shown below. <code>TrayMapping 1 = Tray 1,2;</code>
“Unknown Option”	Invalid option name detected. Enter a valid option name.
“Unknown Value”	An option value was not specified. Enter a valid value.
“Unsupported Option”	An unsupported option in the current printer configuration was specified. An example could be an attempted margin adjustment of tray 3 on a printer with only 2 trays.
“Unsupported Value”	This message is printed if the value is found but not currently available. This could happen if a printer option has not been installed.
“Value Out of Range”	The specified value is outside the valid option range. Specify a value within the range.

Additional information such as invalid option names or values are also printed.

6.3.3.9 Restoring Factory Default Settings Remotely

IPDS factory default settings may be restored remotely by sending the special command below. The command does not appear in the IPDS operator panel menus.

```
EMULATION: RestoreDefaults = Yes;
```

The example text job below may be used to restore IPDS factory defaults. This job restores most IPDS option settings to their factory defaults. The message **Recycle PWR to activate value** may be displayed when using this command. See section 6.1 *Settings That Require Operator Intervention* on page 73 for more information. See section 6.2 *Option Values Which Can Not Be Changed Remotely* on page 73 for defaults which can not be changed.

```
&%IPDSSETOPT;  
EMULATION:RestoreDefaults=YES;  
&%
```

7 Using the SIMM for IPDS with a MarkNet Internal or External Print Server

7.1 IPDS in a LAN Environment

When using the SIMM for IPDS in a printer attached to a LAN with the MarkNet internal print server (Token-Ring or Ethernet), MarkNet Pro external print server (Token-Ring or Ethernet), or the MarkNet XLe print server (Token-Ring or Ethernet), the printer can receive, process and print AFP/IPDS print jobs over TCP/IP from the following IBM software:

- PSF™/MVS 2.2 or greater
- PSF/2 2.0 (or greater)
- PSF/AIX™ V2.1 (or greater)
- PSF/400 V3R1 V3R6, V4R1, V4R2, V4R3, or V4R4

The SIMM for IPDS adds support for the non-standard bi-directional TCP/IP PPD/PPR protocol allowing the IPDS data to be transmitted using TCP/IP.

Important: An IPDS host expects to have full control of IPDS resources and settings once it has established communications with the printer. More than one IPDS host may send jobs to a LAN attached IPDS printer. The second host job will be started by the printer after the first host job has been completed and the first host releases the printer. Release of the printer is controlled by the host "release timer" value, the printer **IPDS Timeout** value, and the MarkNet internal print server, MarkNet Pro external print server, or MarkNet XLe timeouts as specified in the following sections.

On IPDS code level 8223 and above, the IPDS emulation may be shared by IPDS hosts connected to the printer using the Adapter for SCS (Coax or Twinax attachment) and IPDS hosts connected to the printer using a MarkNet internal print server, MarkNet Pro external print server, or MarkNet XLe. When sharing the printer between these types of connections, the IPDS emulation will delete downloaded resources from one host session before beginning another session.

Example

IPDS resources have been downloaded during a session with a host connected through the Adapter for SCS card (Coax or Twinax attachment). These resources will be deleted by the IPDS emulation when an IPDS job is received from a LAN attached host. When another IPDS job is received through the Adapter for SCS card, the printer will return a Printer Reset exception to the host. The host will download the resources again with the next IPDS job.

On IPDS code level 8222 and below, the IPDS emulation cannot be shared by IPDS hosts connected to the printer using the Adapter for SCS (Coax or Twinax attachment) and IPDS hosts connected to the printer using a MarkNet internal print server, MarkNet Pro external print server, or MarkNet XLe. IPDS jobs will either be accepted through the LAN connection or the Coax/Twinax connection, but not both. If you try to share the IPDS emulation between the connections, the printer will stop and display the message **Two IPDS Sources Recycle Power**. The connection through which the IPDS emulation first receives data will be the only connection recognized by the SIMM for IPDS.

If you are installing a:

- MarkNet internal printer server – Go to section 7.2 *Configuring a MarkNet Internal Print Server* on page 84.
- MarkNet Pro external print server – Go to section 7.3 *Configuring a MarkNet Pro External Print Server* on page 87.
- MarkNet XLe external print server – Go to section 7.4 *Configuring a MarkNet XLe External Print Server* on page 89.

7.2 Configuring a MarkNet Internal Print Server

To enable IPDS printing with a MarkNet internal print server, several settings must be changed. You can make these changes from the printer operator panel. For more information on how to change these settings, refer to the *Network Adapter User's Guide* or the *Network Adapter Hardware Setup* manual, which came with your adapter.

7.2.1 Selecting the MarkNet Internal Print Server TCP/IP Protocol Settings

From the printer operator panel, do the following:

1. Press **Menu>** until the **NETWORK MENU** displays. Press **Select**.
2. Press **Menu>** until the **NETWORK OPTION 1** displays. Press **Select**.
(This example assumes the MarkNet internal print server is installed in option connector 1.)
3. Press **Menu>** until you see **NETWORK 1 SETUP**. Press **Select**.
4. Press **Menu>** until you see **TCP/IP**. Press **Select**.

Here you find the following settings:

Activate Yes

Enable BOOTP Yes or No
(Yes, if you use a BOOTP server.)
(No, if you set the IP address another way.)

Enable DHCP Yes or No
(Yes, if you use a DHCP server.)
(No, if you set the IP address another way.)

Enable RARP Yes or No
(Yes, if you use a RARP server.)
(No, if you set the IP address another way.)

Set IP Address 157.184.67.102
(Address available from your network administrator)

Set IP Netmask 255.255.255.0
(Appropriate netmask for your network)

Set IP Gateway 157.184.67.1 (IP address of the IP gateway)

Set Hostname Name (Necessary when using DHCP server.)

7.2.2 Setting the MarkNet Internal Print Server Job Timeout

The recommended setting for the MarkNet internal print server Job Timeout is 0 (disabled). This allows the host system "release timer" value and the printer **IPDS Timeout** value to control when print jobs from another protocol, interface, server, or host can be started.

You may set the MarkNet internal print server Job Timeout value to a value greater than the host "release timer" value. Errors are very likely to occur when the printer requires user intervention and the intervention is not cleared before the timeout occurs.

Setting the MarkNet internal print server Job Timeout smaller than the host "release timer" value or the printer **IPDS Timeout** value will result in communication errors after the job has printed.

From the printer operator panel, do the following:

1. Press **Menu>** until the **NETWORK MENU** displays. Press **Select**.
2. Press **Menu>** until the **NETWORK OPTION 1** displays. Press **Select**.
(This example assumes the MarkNet internal print server is installed in option connector 1.)
3. Press **Menu>** until you see **NETWORK 1 SETUP**. Press **Select**.
4. Press **Menu>** until you see **NETWORK CARD**. Press **Select**.

Here you find the following setting:

Job Timeout 0

(A setting of 0 allows the host system timer or the printer **IPDS Timeout** value to control when print jobs from another protocol, interface, server or host can be started.)

7.3 Configuring a MarkNet Pro External Print Server

To enable IPDS printing with the MarkNet Pro several settings must be changed. *Changes to MarkNet Pro settings can be made using the appropriate network printer utilities.* For more information on how to change these settings, refer to your Lexmark MarkNet Pro network adapter manual which came with your print server.

- *Network Adapter User's Guide* or
- *Network Adapter Hardware Setup*

7.3.1 Printing a MarkNet Pro Setup Page

The MarkNet Pro Microcode Level must be: 2.9.15 (or greater)

To see the code level, you need to print the setup page. To print the MarkNet Pro setup page, press and release **Menu** and **Test** simultaneously. Under the Network Card heading on the Setup Page, look for Firmware Revision.

For more information, see Lexmark's *Network Printer Utility Guide*.

If you need to update your MarkNet code level, contact the Lexmark Technical Support Center. MarkNet Pro firmware updates are also available from the Lexmark web site at <http://www.lexmark.com>.

7.3.2 Setting the MarkNet Pro TCP/IP Protocol Settings

The following TCP/IP protocol settings must be set in order for the host to send jobs to the printer through the MarkNet Pro. Contact your network administrator if you need help with these settings.

Activate Yes

Set IP Address 157.184.67.102
(Address available from your network administrator)

Set IP Netmask 255.255.255.0
(Appropriate netmask for your network)

Set IP Gateway 157.184.67.1 (IP address of the IP gateway)

7.3.3 Setting the MarkNet Pro Job Timeout

The recommended setting for the MarkNet Pro **Job Timeout** is 0 (disabled). This allows the host system "release timer" value to control when print jobs from another protocol, interface, server, or host can be started.

You may set the MarkNet Pro **Job Timeout** value to a value greater than the host "release timer" value. Errors are very likely to occur when the printer requires user intervention and the intervention is not cleared before the timeout occurs.

Setting the MarkNet Pro **Job Timeout** smaller than the host "release timer" value will result in communication errors after the job has printed.

7.3.4 Setting the MarkNet Pro Busy Timeout

Some MarkNet Pro models can support multiple parallel port connections. Each parallel port connection has a separate **Busy Timeout** setting. The **Busy Timeout** must be set on the MarkNet Pro parallel port connection which is connected to your IPDS printer.

Note: This timeout is named "Busy Timeout" on the MarkNet Pro setup page and is named "Printer Timeout" under Adapter Settings when displayed using MarkVision.

The recommended setting for the MarkNet Pro **Busy Timeout** is 0 (disabled). This allows the host system "release timer" value to control when print jobs from another protocol, interface, server, or host can be started.

You may set the MarkNet Pro **Busy Timeout** value to a value greater than the host "release timer" value. Errors are very likely to occur when the printer requires user intervention and the intervention is not cleared before the timeout occurs.

Setting the MarkNet Pro **Busy Timeout** smaller than the host "release timer" value will result in communication errors after the job has printed.

7.4 Configuring a MarkNet XLe External Print Server

To enable IPDS printing with the MarkNet XLe several settings must be changed. *Changes to MarkNet XLe settings can only be made using the appropriate network printer utilities.* For more information on how to change these settings, refer to your Lexmark network adapter manual, which came with your print server.

- *Network Adapter User's Guide* or
- *Network Adapter Hardware Setup* or
- *MarkNet XLe Setup and Service Guide*

7.4.1 Printing a MarkNet XLe Setup Page

Microcode Level

MarkNet XLe 04.130.01 (or greater)

To see the code level, you need to print the setup page. Under the section Network Card, look for Firmware Revision. The middle number (in this case “130”) is the one you want to be greater than or equal to.

To print the MarkNet XLe setup page, do the following:

1. Remove the adapter's switch cover.
2. Press the **Test** button until the Test light comes on. The XLe setup page will print on the attached printer.
3. Replace the adapter's switch cover.

For more information, see Lexmark's *Network Printer Utility Guide*.

If you need to update your MarkNet XLe code level, contact the Lexmark Technical Support Center. MarkNet XLe firmware updates are also available from the Lexmark web site at <http://www.lexmark.com>.

7.4.2 Setting the MarkNet XLe TCP/IP Protocol Settings

The following TCP/IP protocol settings must be set in order for the host to send jobs to the printer through the MarkNet XLe. Contact your network administrator if you need help with these settings.

Activate	Yes
Set IP Address	157.184.67.102 (Address available from your network administrator)
Set IP Netmask	255.255.255.0 (Appropriate netmask for your network)
Set IP Gateway	157.184.67.1 (IP address of the IP gateway)

7.4.3 Setting the MarkNet XLe Job Timeout

The recommended setting for the MarkNet XLe **Job Timeout** is 0 (disabled). This allows the host system "release timer" value to control when print jobs from another protocol, interface, server, or host can be started.

You may set the MarkNet XLe **Job Timeout** value to a value greater than the host "release timer" value. Errors are very likely to occur when the printer requires user intervention and the intervention is not cleared before the timeout occurs.

Setting the MarkNet XLe **Job Timeout** smaller than the host "release timer" value will result in communication errors after the job has printed.

7.4.4 Setting the MarkNet XLe Busy Timeout

The recommended setting for the MarkNet XLe **Busy Timeout** is 0 (disabled). This allows the host system "release timer" value to control when print jobs from another protocol, interface, server, or host can be started.

You may set the MarkNet XLe **Busy Timeout** value to a value greater than the host "release timer" value. Errors are very likely to occur when the printer requires user intervention and the intervention is not cleared before the timeout occurs.

Setting the MarkNet XLe **Busy Timeout** smaller than the host "release timer" value will result in communication errors after the job has printed.

7.5 Printing IPDS from PSF/400 with OS/400 V3R1 or V3R6

Install the latest cumulative PTF fix pack or tape for the operating system (including the tool, WRKAFF2).

- PTF SF29249
PTF SF29249, which is available from IBM, provides the source code for WRKAFF2 and must be installed. This PTF provides QSYS/QPQXWAFP program command source code in the PTF cover letter special instructions.
- PTF SF29961 (V3R1)
- PTF SF32907 (V3R6)

1. Set up and start the TCP/IP network:

- Create a Token-Ring or an Ethernet line description for the printer using CRTLINTRN or CRTLINETH.
- Add a TCP/IP interface using ADDTCPIFC.
- Add a router definition, if required, using ADDTCP RTE.
- Start TCP/IP using STRTCP.

2. Create an APPC-attached printer device description using CRTDEVPRT (see steps below).

Note: Only the required fields are listed below.

At the command line, type: CRTDEVPRT and press <F4>. Enter the following information:

Device description (User defined name)	OPTRA
---	-------

Device class	*RMT
--------------	------

Device type	*IPDS
-------------	-------

Device model	0
--------------	---

Press <ENTER>

Advanced function printing	*YES
----------------------------	------

Press <ENTER>

AFP attachment	*APPC
----------------	-------

Press <ENTER>

Font identifier (Font Global ID for Courier 10 CPI)	11
--	----

Form feed	*AUTOCUT
-----------	----------

Press <ENTER>, then <PAGE DOWN>

Remote location	TCPIP
-----------------	-------

Press <ENTER> to create the printer device description for the Optra IPDS printer.

3. Using WRKAFF2, specify the printer's TCP/IP configuration information. This data area, which must be saved in library QGPL, will override the APPC device description just created with the CRTDEVPRT command.

At the command line, type: WRKAFF2 and press <F4>.

Printer device name	DEVD	OPTRA
(Same user defined name as before)		

IPDS pass through	IPDSPASTHR	*YES
-------------------	------------	------

TCP/IP support	TCP/IP	*YES
----------------	--------	------

Press <ENTER>

Remote System	RMTSYS	157.184.67.102
(IP address or remote system host name)		

Port	PORT	9100
------	------	------

(9100 or 9600 for MarkNet internal print server)
(9100 for Parallel 1 on MarkNet Pro external print server or MarkNet XLe)
(9102 for Parallel 2 on MarkNet Pro external print server or MarkNet XLe)

Refer to *4.3.14 IPDS Timeout* on page 40 for further information on the selection of ports.

Press <ENTER>

Inactivity timer	INACTTMR	*SEC15
------------------	----------	--------

Press <ENTER> to create the data area.

All values must be re-entered if any changes are made to any of the values in WRKAFF2; otherwise all values are reset to the default value.

Related information

Vary on the printer device description:

```
VRYCFG CFGOBJ(OPTRA) CFGTYPE(*DEV) STATUS(*ON)
```

Start the writer:

```
STRPRTWTR OPTRA
```

To PING the device:

```
PING 'ip_address' or PING host_name
```

For example: PING '157.184.67.102'

To print the contents of the data area in the library QGPL, type:

```
WRKAFP2 DEVD(OPTRA) PRINTONLY(*YES)
```

7.6 Printing IPDS from PSF/400 with OS/400 V3R2

Install the latest cumulative PTF fix pack or tape for the system.

- PTF 41993, which is available from IBM, provides a fix for out of paper responses from the printer.

1. Set up and start the TCP/IP network:

- Create a Token-Ring or an Ethernet line description for the printer using CRTLINTRN or CRTLINETH.
- Add a TCP/IP interface using ADDTCPIFC.
- Add a router definition, if required, using ADDTCPRTE.
- Start TCP/IP using STRTCP.

2. Create a printer device description using CRTDEVPRT (see steps below and the example on page 101).

Note: Only the required fields are listed below.

At the command line, type: CRTDEVPRT and press <F4>. Enter the following information:

Device description (User defined name)	OPTRA
Device class	*RMT
Device type	*IPDS
Device model	0

Press <ENTER>

Advanced function printing *YES

Press <ENTER>

AFP attachment *APPC

Press <ENTER>

Font identifier 11
(Font Global ID for Courier 10 CPI)

Form feed *AUTOCUT

Press <ENTER>, then <PAGE DOWN>

Remote location TCPIP

Press <ENTER> to create the printer device description for the Optra IPDS printer.

3. Using CRTPSFCFG, specify the printer's TCP/IP configuration information. This PSF configuration object, which must be saved in library QGPL, overrides the APPC device description just created with the CRTDEVPRT command. See the example on page 99.

At the command line, type: CRTPSFCFG and press <F4>. Enter the following information:

PSF Configuration	DEV D	OPTRA
(Same user defined name as before)		

Library	QGPL
---------	------

IPDS pass through	IPDSPASTHR	*YES
-------------------	------------	------

Release timer	RLSTMR	*SEC15
---------------	--------	--------

Press <F10>, then <PAGE DOWN> to access the additional parameters.

Remote location	RMTLOCNAME	157.184.67.102
(IP address or remote host name)		

TCP/IP Port	PORT	9100
-------------	------	------

(9100 or 9600 for MarkNet internal print server)

(9100 for Parallel 1 on MarkNet Pro external print server or MarkNet XLe)

(9102 for Parallel 2 on MarkNet Pro external print server or MarkNet XLe)

Refer to *4.3.14 IPDS Timeout* on page 40 for further information on the selection of ports.

Press <ENTER> to create the PSF object.

Related information

Vary on the printer device description:

```
VRFCFG CFGOBJ(OPTRA) CFGTYPE(*DEV) STATUS(*ON)
```

Start the writer:

```
STRPRTWTR OPTRA
```

To PING the device:

```
PING 'ip_address' or PING host_name
```

For example, PING '157.184.67.102'

To list PSF configuration objects (in the library QGPL), use WRKPSFCFG command.

Command set for PSF configuration objects:

CRTPSFCFG - create

CHGPSFCFG - change (with the writer stopped)

DSPPSFCFG - display

DLTPSFCFG - delete (with the writer stopped)

7.6.1 Example CRTDEVPRT for OS/400 V3R2

```

Device description . . . . . :   DEVD           OPTRA
Option . . . . . :   OPTION         *BASIC
Category of device . . . . . :                   *PRT

Automatically created . . . . . :                   NO
Device class . . . . . :   DEVCLS     *RMT
Device type . . . . . :   TYPE       *IPDS
Device model . . . . . :   MODEL      0
Advanced Function Printing . . . . . :   AFP      *YES
AFP attachment . . . . . :   AFPATTACH *APPC
Online at IPL . . . . . :   ONLINE    *YES
Font . . . . . :   FONT
    Identifier . . . . . :                   011
    Point size . . . . . :                   *NONE
Form feed . . . . . :   FORMFEED     *AUTOCUT
Separator drawer . . . . . :   SEPDRAWER *FILE
Separator program . . . . . :   SEPPGM  *NONE
Printer error message . . . . . :   PRTERMSG *INQ
Message queue . . . . . :   MSGQ      MHARVEY
    Library . . . . . :                   PRTDEV
Maximum pending requests . . . . . :   MAXPNDRQS 6
Print while converting . . . . . :   PRTCVT  *YES
Form definition . . . . . :   FORMDF    F1C10110
    Library . . . . . :                   *LIBL
Character identifier . . . . . :   CHRID    *SYSVAL
Remote location . . . . . :   RMTLOCNAME TCPIP
Local location . . . . . :   LCLLOCNAME *NETATR
Remote network identifier . . . . . :   RMTNETID *NETATR
Mode . . . . . :   MODE      QSPWTR
Dependent location name . . . . . :   DEPLOCNAME *NONE
Text . . . . . :   TEXT      Optra Printer

```

7.6.2 Example CRTPSFCFG for OS/400 V3R2

```
PSF configuration . . . . . : OPTRA
  Library . . . . . : QGPL
User resource library . . . . . : *JOBLIBL
IPDS pass through . . . . . : *YES
Activate release timer . . . . . : *NORDYF
Release timer . . . . . : *SEC15
Restart timer . . . . . : *IMMED
SNA retry count . . . . . : 2
Delay time between retries . . . . : 0
Blank page . . . . . : *YES
Page size control . . . . . : *NO
Resident fonts . . . . . : *YES
Resource retention . . . . . : *YES
Edge orient . . . . . : *NO
Remote location:
  Name or address . . . . . : 157.184.67.102
TCP/IP port . . . . . : 9100
TCP/IP activation timer . . . . . : 170
PSF defined options:
  *NONE
Text description . . . . . :
Device resource library list:
  *DFT
```

7.7 Printing IPDS from PSF/400 with OS/400 V3R7, V4R1, V4R2, V4R3, or V4R4

Install the latest cumulative PTF fix pack or tape for the system.

- PTF 43310, which is available from IBM provides a fix for out of paper responses from the printer.

1. Set up and start the TCP/IP network:

- Create a Token-Ring or an Ethernet line description for the printer using CRTLINTRN or CRTLINETH.
- Add a TCP/IP interface using ADDTCPIFC.
- Add a router definition, if required, using ADDTCPRTE.
- Start TCP/IP using STRTCP.

2. Define a PSF configuration object for your printers using CRTPSFCFG. What you define here is referenced in the printer device description (CRTDEVPRT). *More than one printer can use this object.* See the example on page 106.

Note: Only the required fields are listed below.

Type CRTPSFCFG and press <F4>. Enter the following information:

PSF configuration (OPTRAPRT is a user defined name.)	PSFCFG	OPTRAPRT
	Library	QGPL
IPDS pass through	IPDSPASTHR	*YES
Release timer	RLSTMR	*SEC15
Text 'description' (Optional)	TEXT	'Optra Printer'

Note: With V3R7 you enter the TCP/IP address and port number in the printer device description. It is not entered here.

Press <ENTER> to create the PSF object.

3. Create a printer device description for your printer using CRTDEVPRT. See the example on page 106.

Note: Only the required fields are listed.

Type CRTDEVPRT and press <F4>. Enter the following information:

Device description	DEVD	OPTRA
(OPTRA is a user defined name.)		
Device class	DEVCLS	*LAN
Device type	TYPE	*IPDS
Device model	MODEL	0

Press <ENTER>

LAN attachment	LANATTACH	*IP
----------------	-----------	-----

Press <F9> to get all of the parameters.

Advanced function printing	AFP	*YES
Port number	PORT	9100

(9100 or 9600 for MarkNet internal print server)
(9100 for Parallel 1 on MarkNet Pro external print server or MarkNet XLe)
(9102 for Parallel 2 on MarkNet Pro external print server or MarkNet XLe)

Refer to *4.3.14 IPDS Timeout* on page 40 for further information on the selection of ports.

Press <PAGE DOWN> (or <ROLL UP>)

Font:	FONT	
Identifier		11
(11 is for Courier 10 CPI)		

Form feed	FORMFEED	*AUTOCUT
-----------	----------	----------

Press <PAGE DOWN> (or <ROLL UP>)

Activation timer	ACTTMR	*NOMAX
------------------	--------	--------

Press <PAGE DOWN> (or <ROLL UP>)

Press <PAGE DOWN> (or <ROLL UP>)

Remote location:	RMTLOCNAME	
Name or address		157.184.67.102
(IP address or remote host name)		

Press <PAGE DOWN> (or <ROLL UP>)

User-defined object:	USRDFNOBJ	
Object		OPTRAPRT
Library		QGPL
Object type		*PSFCFG
Text 'description'	TEXT	'Optra Printer'
(Optional)		

Press <ENTER> to create the printer device description.

4. Vary on the device:

```
VRYCFG CFGOBJ(OPTRA) CFGTYPE(*DEV) STATUS(*ON)
```

5. Start the writer:

```
STRPRTWTR OPTRA
```

Related information

To end the writer: ENDWTR OPTRA

To PING the device: PING 'ip_address' or PING host_name
For example: PING '157.184.67.102'

To list PSF configuration objects (in the library QGPL), use the WRKPSFCFG command.

Command set for PSF configuration objects:

CRTPSF CFG - create

CHGPSFCFG - change (with the writer stopped)

DSPPSFCFG - display

DLTPSF CFG - delete (with the writer stopped)

7.7.1 Example CRTPSFCFG for OS/400 V3R7, V4R1, V4R2 V4R3, or V4R4

```

PSF configuration . . . . . PSFCFG          > OPTRAPRT
  Library . . . . .          > QGPL
User resource library list . . . USRRSCLIBL  *JOBLIBL
Device resource library list . . DEVRSLIBL   *DFT
IPDS pass through . . . . . IPDSPASTHR      > *YES
Activate release timer . . . . . ACTRLSTMR   *NORDYF
Release timer . . . . . RLSTMR              > *SEC15
Restart timer . . . . . RESTRTMR            *IMMED
SNA retry count . . . . . RETRY              2
Delay time between SNA retries RETRYDLY      0
Text 'description' . . . . . TEXT           > 'Optra Printer'

```

Additional Parameters

```

Blank page . . . . . BLANKPAGE             *YES
Page size control . . . . . PAGSIZCTL       *NO
Resident fonts . . . . . RESFONT            *YES
Resource retention . . . . . RSCRET          *YES
Edge orient . . . . . EDGEORIENT           *NO
Remote location:
  Name or address . . . . .                > *NONE
TCP/IP port . . . . . PORT                  > *NONE
TCP/IP activation timer . . . ACTTMR         170
Use outline fonts . . . . . USEOUTLFNT      *NO
PSF defined option . . . . . PSFDFNOPT      *NONE
Replace . . . . . REPLACE                   *YES
Authority . . . . . AUT                     *LIBCRTAUT

```

7.7.2 Example CRTDEVPRT for OS/400 V3R7, V4R1, V4R2, V4R3, or V4R4

```

Device description . . . . . DEVD                > OPTRA
Device class . . . . . DEVCLS                > *LAN
Device type . . . . . TYPE                  > *IPDS
Device model . . . . . MODEL                > 0
LAN attachment . . . . . LANATTACH          > *IP
Switched line list . . . . . SWTLLNLSST
LAN remote adapter address . . . . . ADPTADR
Adapter type . . . . . ADPTTYPE              *INTERNAL
Adapter connection type . . . . . ADPTCNNTYP *PARALLEL
Emulated twinaxial device . . . . . EMLDEV
Advanced Function Printing . . . . . AFP      > *YES
AFP attachment . . . . . AFPATTACH          *WSC
Port number . . . . . PORT                  > 9100
Switch setting . . . . . SWTSET
Local location address . . . . . LOCADR
Auxiliary printer . . . . . AUXPRT
Emulating ASCII device . . . . . EMLASCII    *NO
Physical attachment . . . . . ATTACH
Online at IPL . . . . . ONLINE              *YES
Attached controller . . . . . CTL
Language type . . . . . LNGTYPE             *SYSVAL
Print quality . . . . . PRTQLTY             *STD
Font:
  Identifier . . . . .                      > 11
  Point size . . . . .                      *NONE
Form feed . . . . . FORMFEED                > *AUTOCUT
Separator drawer . . . . . SEPDRAWER        *FILE
Separator program . . . . . SEPPGM          *NONE
Library . . . . .
Number of drawers . . . . . NBRDRAWER
Printer error message . . . . . PRTERMSG    *INQ
Message queue . . . . . MSGQ               MHARVEY
  Library . . . . .                        PRTDEV
Maximum length of request unit . . . . . MAXLENRU *CALC
Application type . . . . . APPTYPE          *NONE
Activation timer . . . . . ACTTMR           > *NOMAX
Inactivity timer . . . . . INACTTMR        *ATTACH
SNA pass-through device desc . . . . . SNPTDEV *NONE
SNA pass-through group name . . . . . SNPTGRP *NONE
Host signon/logon command . . . . . LOGON  *NONE
Pacing . . . . . PACING                    7
Line speed . . . . . LINESPEED             *TYPE
Word length . . . . . WORDLEN              *TYPE
Type of parity . . . . . PARITY            *TYPE
Stop bits . . . . . STOPBITS              *TYPE
Host Print Transform . . . . . TRANSFORM    *NO
Manufacturer type and model . . . . . MFRTYPMDL
Paper source 1 . . . . . PPRSRC1           *MFRTYPMDL
Paper source 2 . . . . . PPRSRC2           *MFRTYPMDL
Envelope source . . . . . ENVELOPE         *MFRTYPMDL
ASCII code page 899 support . . . . . ASCII899 *NO
Maximum pending requests . . . . . MAXPNDRQS 6

```

7.7.3 Example CRTDEVPRT for OS/400 V3R7, V4R1, V4R2, V4R3, or V4R4 (continued)

```

Print while converting . . . . . PRTCVT          *YES
Print request timer . . . . . PRTRQSTMR        *NOMAX
Form definition . . . . . FORMDF              F1C10110
    Library . . . . .                      *LIBL
    Character identifier:                CHRID
        Graphic character set . . .      *SYSVAL
        Code page . . . . .
Remote location:                RMTLOCNAME
    Name or address . . . . . > 157.184.67.102
Local location . . . . . LCLLOCNAME          *NETATR
Remote network identifier . . . RMTNETID      *NETATR
Mode . . . . . MODE                        QSPWTR
Workstation customizing object WSCST          *NONE
    Library . . . . .
Authority . . . . . AUT                    *LIBCRTAUT
User-defined options . . . . . USRDFNOPT      *NONE
User-defined object:            USRDFNOBJ
    Object . . . . . > OPTRAPRT
        Library . . . . . > QGPL
        Object type . . . . . > *PSFCFG
Data transform program . . . . USRDTATFM      *NONE
    Library . . . . .
User defined driver program . . USRDRVPGM      *NONE
    Library . . . . .
System driver program . . . . . SYSDRVPGM
Text 'Description' . . . . . TEXT            > 'OPTRA PRINTER'
Dependent location name . . . . DEPLOCNAME    *NONE

```

7.8 Printing IPDS from PSF/MVS

The SIMM for IPDS enables IPDS printing directly from a MVS mainframe. Software requirements for the MVS are:

PSF/MVS Version 2 Release 2.0 with APAR OW15599, OW15018 and OW16442

PSF/MVS Version 3.1 or later

MVS Scheduler APAR OW12236 to support two new PRINTDEV keywords: IPADDR and PORTNO.

TCP/IP Version 3 Release 1, or higher installed and configured on MVS.

For an installation description please refer to the IBM publications:

*Print Service Facility/MVS
Update Guide
Version 2, Release 2, Modification 0
Publication No. G544-3984-01*

*Print Services Facility/MVS
System Programming Guide
Version 2, Release 2, Modification 0
Publication No. S544-3672-03*

*PSF V3R1 for OS/390
Customization
Publication No. S544-5622-00*

*PSF V3R1 for OS/390
Licensed Program Specifications
Publication No. G544-5626-00*

*PSF V3R1 for OS/390
Messages and Codes
Publication No. G544-5627-00*

*PSF V3R1 for OS/390
User's Guide
Publication No. S544-5630-00*

7.8.1 Steps to Create a New Printer

1. Define the printer to VTAM.

```
PSFL2450 MODEENT LOGMODE=PSFL2450 ,
FMPROF='13',TSPROF='07',PRIPROT='B0',
SECPROT='B0',COMPROT='D0B1',RUSIZES='87F8'
PSERVIC='060200000000000000002000'
PSNDPAC='02',SRCVPAC='02',SSNDPAC='00'
```

2. Define the printer to a JES printer.

a. Example for JES2

```
FSS(FSS1) PROC=PSFPROC,HASPFSSM=HASPFSSM
PRT7      FSS=FSS1,MODE=FSS,
          PRMODE=(LINE,PAGE,SOSI1),
          CLASS=C,UCS=0,SEP,NOSEPDS,CKPTPAGE=100,
          DRAIN,MARK,TRKCELL=YES
```

b. Example for JES3

```
FFSDEF,TYPE=WTR,FSSNAME=FSS3,PNAME=SAMPLE01,
SYSTEM=SYS1,TERM=NO,
DEVICE,DTYPE=PRTAFPL,NAME=PRT7,
JUNIT=(,SYS1,OFF),FSSNAME=FSS3,
MODE=FSS,PM=(LINE,PAGE,SOSI1),CHARS=(YES,GT12),
CARRIAGE=(YES,A868),CKPNTGP=100,HEADER=YES,
WC=(C)
```

3. Add the printer to the PSF STARTUP PROC.

```
//PRT7      CNTL
//PRT7 PRINTDEV FONTDD=*.FONT01,      /* FONT                */
//OVLydd=*.OLAY01,                    /* OVERLAY                */
//PSEGDD=*.PSEG02,                    /* SEGMENT                 */
//PDEFDD=*.PDEF01,                    /* PAGEDEF                 */
//FDEFDD=*.FDEF01,                    /* FORMDEF                 */
//JOBHDR=*.JOBHDR,                    /* JOB HEADER              */
//JOBTRLR=*.JOBTLR,                   /* JOB TRAILER             */
//DSHDR=*.DSHDR,                      /* DATA SET HEADER        */
//FORMDEF=A10110,                     /* FORMDEF                 */
//PIMSG=(YES,16),                     /* MESSAGES                */
//DATAck=BLOCK,                       /* BLOCK DATA CHECKS     */
//TRACE=NO,                           /* INTERNAL TRACE          */
//MGMTMODE=OUTAVAIL,                  /* OUTPUT AVAILABLE        */
//DISCINTV=15,                        /* TIMEOUT=15 SECONDS     */
//TIMEOUT=REDRIVE,                    /*                          */
//FAILURE=WCONNECT,                   /* ATTEMPT RECONNECT      */
//IPADDR=157.184.67.102,
//PORTNO=9100,
//PRT7 ENDCNTL
```

Refer to the next section for information on selecting DISCINTV and PORTNO.

7.8.2 Printer Sharing Parameters

To enable the printer to start other print jobs from another protocol, interface or server the following parameters on the PRINTDEV statement have to be coded in the PSF STARTUP PROC:

MGMTMODE=OUTAVAIL

DISCINTV=15

TIMEOUT=REDRIVE

FAILURE=WCONNECT

IPADDR=157.184.67.102

(address available from your network administrator)

PORTNO=9100

(9100 or 9600 for MarkNet internal print server)

(9100 for Parallel 1 on MarkNet Pro external print server or MarkNet XLe)

(9102 for Parallel 2 on MarkNet Pro external print server or MarkNet XLe)

Refer to *4.3.14 IPDS Timeout* on page 40 for further information on the selection of ports.

The value (15) for DISCINTV specifies the time in seconds after which PSF ends the printer session when no output is available. The valid range is from 0 to 8160 seconds. The default value is 0. If DISCINTV=0, the PSF does not end the printer session when no output is available.

The MarkNet internal print server has a network inactivity timer called Job Timeout. The MarkNet Pro external print server and the MarkNet XLe adapter has a network

inactivity timer called the End-of-Job Timeout option. *We will refer to both as the End-of-Job Timeout.* The default is 90 seconds. It is recommended that the End-of-Job Timeout is disabled (set to 0) and the DISCINTV is set to 15 seconds, if the printer **IPDS Timeout** value is set to **Host Controlled**.

If the End-of-Job Timeout is greater than the DISCINTV value, errors are very likely to occur if the printer requires user intervention. If, on the other hand, the End-of-Job Timeout is smaller than the DISCINTV value, an error is certain to occur the first time the MarkNet card times out after a completed print job. Therefore, the End-of-Job Timeout should be set to 0 (disabled).

The End-of-Job Timeout can be set with the MarkNet configuration procedure. Please refer to the Lexmark *Network Adapter User's Guide*.

For activation timeout errors, set the connect timer or activation timer in the PSF settings to 30 second or greater.

7.8.3 Example PSF STARTUP PROC - JCL and PRINTDEV

```
//SAMPLE PROC
//*
//STEP01 EXEC PGM=APSPPIEP,REGION=4096K,TIME=1440
//STEPLIB DD DSN=PSF.LINKLIB,DISP=SHR
//JOBHDR OUTPUT PAGEDEF=V06483, /* JOB HEADER */
// FORMDEF=A10110,CHARS=GT12 /* */
//JOBTLR OUTPUT PAGEDEF=V06483, /* JOB TRAILER */
// FORMDEF=A10110,CHARS=GT12 /* FORMDEF */
//MSGDS OUTPUT PAGEDEF=A08682 /* MESSAGE */
// FORMDEF=A10110,CHARS=GT15 /* */
//*
//FONT01 DD DSN=SYS1.FONTLIB,DISP=SHR/* SYSTEM FONTS */
// DD DSN=INST.FONTLIB,DISP=SHR/* USER FONTS */
//*
//PSEG02 DD DSN=INST.PSEGLIB,DISP=SHR/* PAGE SEGMENTS */
//*
//OLAY01 DD DSN=INST.OVERLIB,DISP=SHR/* OVERLAYS */
//*
//PDEF01 DD DSN=SYS1.PDEFLIB,DISP=SHR/* SYSTEM PAGE DEFS */
// DD DSN=INST.PDEFLIB,DISP=SHR/* PAGE DEFS */
//*
//FDEF01 DD DSN=INST.FDEFLIB,DISP=SHR/* SYSTEM FORM DEFS */
// DD DSN=INST.FDEFLIB,DISP=SHR/* FORM DEFS */
//*
//PRT7 CNTL
//PRT7 PRINTDEV FONTDD=*.FONT01,/* FONT */
// OVLYDD=*.OLAY01, /* OVERLAY */
// PSEGDD=*.PSEF02, /* SEGMENT */
// PDEFDD=*.PDEF01, /* PAGEDEF */
// FDEFDD=*.FDEF01, /* FORMDEF */
// JOBHDR=*.JOBHDR, /* JOB HEADER */
// JOBTRLR=*.JOBTLR, /* JOB TRAILER */
// DSHDR=*.DSHDR, /* DATA SET HEADER */
// FORMDEF=A10110, /* FORMDEF */
// PMSG=(YES,16), /* MESSAGES */
// DATAK=BLOCK, /* BLOCK DATA CHECKS */
// TRACE=NO, /* INTERNAL TRACE */
// MGMTMODE=OUTAVAIL, /* OUTPUT AVAILABLE */
// DISCINTV=15, /* TIMEOUT = 15 SECONDS */
// TIMEOUT=REDRIVE, /* */
// FAILURE=WCONNECT, /* ATTEMPT RECONNECT */
// IPADDR=157.184.67.102, /* IP ADDRESS */
// PORTNO=9100, /* PORT NUMBER */
//PRT7 ENDCNTL
```


7.9 Printing IPDS from PSF/2

This section describes how to set up PSF/2 to make it possible to print IPDS data to a LAN attached printer using TCP/IP.

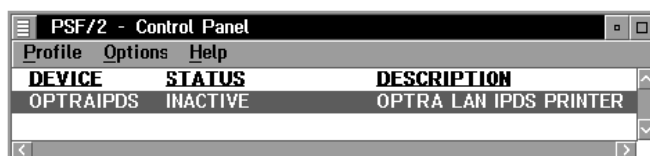
This section does not describe how to connect PSF/2 to an IBM host to receive AFP and IPDS data. Please refer to the PSF/2 documentation for a description.

System requirements

OS/2™ version 2.11 or newer
DB/2 version 1.0 or newer
PSF/2 version 2.0 or newer
TCP/IP version 2.0 (CSD UN56401) or newer

How to Create a New Printer

1. Start PSF/2 control panel by selecting the PSF/2 Folder and then selecting the PSF/2 Control Panel icon.



2. On the PSF/2 Control Panel select Profile and then New. The PSF/2 New Device menu appears.

New device

Enter the following information to create a new device:

Device name: OPTRAIPDS

Path: D:\PSF2\SYSTEM\

Description: OPTRA LAN IPDS PRINTER

Attachment Type

Parallel
TCP/IP
None

Settings...

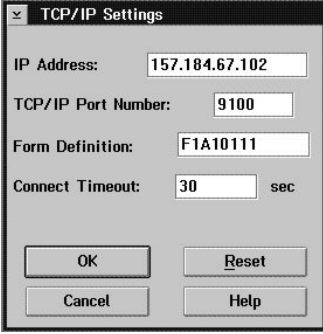
Device Resolution:

300 PEL
240 PEL
300 PEL

Create Cancel Help

Enter the device name and the device description and select a Device Resolution of 300 pel.

3. Select TCP/IP as Attachment Type and select Settings. The TCP/IP Settings menu appears.



TCP/IP Settings

IP Address: 157.184.67.102

TCP/IP Port Number: 9100

Form Definition: F1A10111

Connect Timeout: 30 sec

OK Reset

Cancel Help

Enter the IP address of the printer. The IP address should be obtained from your network administrator. The TCP/IP port number entered must be either 9100, 9102, or 9600.

9100 or 9600 for MarkNet internal print server

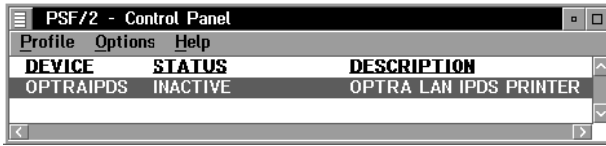
9100 for Parallel 1 on MarkNet Pro external print server or MarkNet XLe

9102 for Parallel 2 on MarkNet Pro external print server or MarkNet XLe

Refer to *4.3.14 IPDS Timeout* on page 40 for further information on the selection of ports.

Select **[OK]** and then **[Create]**. The PSF/2 printer device is now created and is ready to print from a PSF/2 connected IBM host.

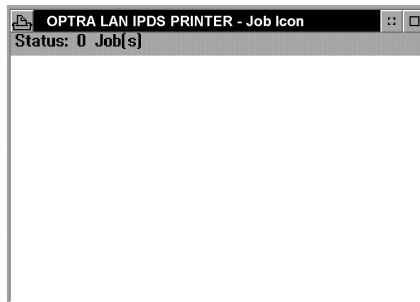
4. On the PSF/2 Control Panel select Options and Setup queues.



The Setup queues menu will appear. It will be blank at first. Enter the Queue name, description and select the Device and then select Setup.



An OS/2 printer queue is now created and the printer is ready to print IPDS from OS/2 and a PSF/2 connected host.



Note: You can check the connection using the PSF/2 Print Submitter. A number of AFP print files are delivered with the PSF/2 package. Any of these files can be submitted to the newly created print queue.

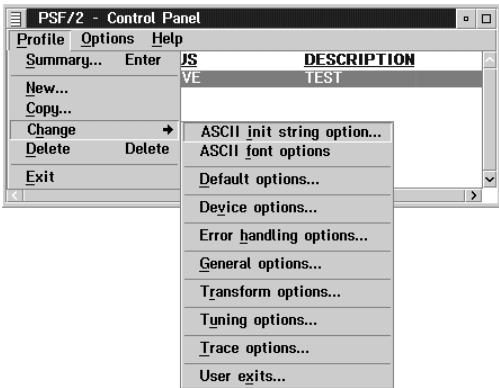
7.10 Printer Sharing in the PSF/2 Environment

To enable the printer to start other print jobs from another protocol, interface or server, the PSF/2 tuning option Job Interval Shutdown Timer is used.

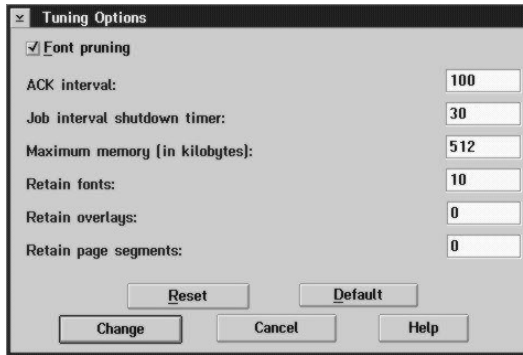
Important: The End-of-Job Timeout has to be disabled (set to 0) in order to prevent the print server or adapter from releasing the TCP/IP protocol. See Setting the End-of-Job Timeout on page 84.

Use the following steps to set the Job Interval Shutdown Timer option:

1. Start the PSF/2 control panel by selecting the PSF/2 folder and then the PSF/2 Control Panel icon.
2. On the PSF/2 Control Panel select |Profile| and then |Change|.



3. Now select Tuning options.



Tuning Options

☒ Font pruning

ACK interval: 100

Job interval shutdown timer: 30

Maximum memory (in kilobytes): 512

Retain fonts: 10

Retain overlays: 0

Retain page segments: 0

Reset Default

Change Cancel Help

The Job Interval Shutdown Timer indicates the number of seconds PSF/2 waits before shutting down when there are no jobs in the queue. In other words this is the amount of time that PSF/2 remains active after the last job is printed.

Valid values: integers 1 to 9999
1-9998 time in seconds to wait between jobs
9999 wait indefinitely for the next job to be received.

If you are using a MarkNet internal print server and set the printer **IPDS Timeout** value to **Host Controlled**, the recommended value is 30 seconds.

7.11 Printing IPDS from PSF/AIX

To create a new IPDS printer definition in PSF/AIX perform the following actions:

1. Execute the command `smit psf_add_prt_tcpip` to get the PSF/AIX SMIT Printer Definition for TCP/IP attached printers.
2. Answer the following:

Printer NAME:

Enter a name for the IPDS printer. This name will also be used for the print queue associated with the printer.

Internet ADDRESS:

Enter the host name (preferred) or IP address you have assigned to the MarkNet adapter (e.g. 157.184.67.102). If you use the host name, PSF/AIX will resolve it into an IP address either through the Host file or through a Domain Naming Service (DNS) Server.

PORT Number:

Must be set to 9100, 9102, or 9600

(9100 or 9600 for MarkNet internal print server)

(9100 for MarkNet Pro external print server or MarkNet XLe)

(9102 for Parallel 2 on MarkNet Pro external print server or MarkNet XLe)

Refer to *4.3.14 IPDS Timeout* on page 40 for further information on the selection of ports.

Number of QUEUE DEVICES:

Leave this at the default value (4 devices) initially. You can tune this option later, according to the throughput of the printer.

Connect TIMEOUT:

Initially leave this at the default value (30 seconds). Refer to the PSF/AIX on-line help for information about when to increase this value.

DESCRIPTION:

Enter an optional description for the printer.

3. Press Enter to create the new IPDS printer definition.

Note: You can check the connection by using the **enq** command to place jobs in the queue. Example:

```
enq -P'psfqueue' -odatatype=AFPDS /etc/motd
```

You can also use the command `smit psf_data_type_sel` to queue the job.

See also the chapter *Installing a TCP/IP-attached IPDS printer* in the IBM AIX *Print Service Facility/6000: Print Administration Version 1.2* manual for further information about this task.

8 Using the SIMM for IPDS with the Adapter for SCS

8.1 Using the Coax/Twinax Adapter for SCS

This section describes how to set up the Adapter for SCS to make it possible to print IPDS data to either a direct coaxially attached printer or a direct twinaxially attached printer. Please refer to Appendix A for a list of compatible hardware attachments and supported host software.

Adapter for SCS Code Levels Required

H01-9072 (or greater) for coax
H02-8491 (or greater) for twinax

To see the Adapter for SCS code level, you need to use the printer's operator panel. The last four digits (in "8491") are the ones you want to be greater than or equal to.

To print a Firmware Summary, follow these steps

1. When **Ready** or **Power Saver** displays in the operator panel, press **Menu>** to move to **NETWORK MENU**. Press **Select**. You will then see **NETWORK OPTION 1**, **NETWORK OPTION 2** or **NETWORK OPTION 3** display. Pick the number corresponding to the option slot the adapter is installed in. Press **Select**.
2. Press **Menu>** until you see **SCS MENU 1**, **SCS MENU 2** or **SCS MENU 3** display.
3. Press **Select**. Press **Menu>** until you see **TESTS OPTIONS**.
4. Press **Select**. **Firmware Summary** displays. Press **Select**.
5. Press **Menu>** until you see **Print**. Press **Select**. A short report listing the revision numbers will print.

Important:

On IPDS code level 8223 and above, the IPDS emulation may be shared by IPDS hosts connected to the printer using the Adapter for SCS (Coax or Twinax attachment) and IPDS hosts connected to the printer using a MarkNet internal print server, or a MarkNet Pro external print server, or MarkNet XLe. When sharing the printer between these types of connections, the IPDS emulation will delete downloaded resources from one host session before beginning another session.

Example

IPDS resources have been downloaded during a session with a host connected through the Adapter for SCS card (Coax or Twinax attachment). These resources will be deleted by the IPDS emulation when an IPDS job is received from a LAN attached host. When another IPDS job is received through the Adapter for SCS card, the printer will return a Printer Reset exception to the host. The host will download the resources again with the next IPDS job.

On IPDS code level 8222 and below, the IPDS emulation cannot be shared by IPDS hosts connected to the printer using the Adapter for SCS (Coax or Twinax attachment) and IPDS hosts connected to the printer using a MarkNet internal print server, or a MarkNet Pro external print server, or MarkNet XLe. IPDS jobs will either be accepted through the LAN connection or the Coax/Twinax connection, but not both. If you try to share the IPDS emulation between the connections, the printer will stop and display the message **Two IPDS Sources Recycle Power**. The connection through which the IPDS emulation first receives data will be the only connection recognized by the SIMM for IPDS.

Note:

When using the Coax/Twinax Adapter for SCS in a printer with a SIMM for IPDS installed, the Coax or Twinax Timeout value overrides the **IPDS Timeout** value.

8.2 Using the Coax Interface with IPDS

Note: When coax attached, the Adapter for SCS will, by default, use the IPDS emulation if a SIMM for IPDS is installed. If you install a new Adapter for SCS in an Optra printer with a SIMM for IPDS (and vice versa), you do not need to configure the Adapter for SCS to use the IPDS emulation.

8.3 IPDS Enabled Setting

This is a setting on the Adapter for SCS, which only appears when the SIMM for IPDS is detected in the printer. The default is “Yes” (IPDS is enabled).

From the printer operator panel, do the following:

1. Press **Menu>** until **NETWORK MENU** displays. Press **Select**.
2. Press **Menu>** until **NETWORK OPTION 1** displays. Press **Select**. (This example assume the Adapter for SCS is installed in option connector 1.)
3. Press **Menu>** until you see **SCS MENU 1**. Press **Select**.
4. Press **Menu>** until you see **IPDS OPTION**. Press **Select**.

Here you find the setting:

IPDS Enabled	Yes*
	No

To pass IPDS or SCS data to the SIMM for IPDS, select “Yes”.

To pass only SCS data to the SIMM for IPDS, select “No”.

Note: Changes to this setting become active only after the printer is powered OFF and then powered ON.

8.4 Changing the Coax Timeout Value (For Reference Only)

If necessary you can change the Coax Timeout value by following these steps:

1. Press **Menu>** until **NETWORK MENU** displays. Press **Select**.
2. Press **Menu>** until **NETWORK OPTION 1**, **NETWORK OPTION 2** or **NETWORK OPTION 3** displays. The number corresponds to the number of the option connector the Adapter for SCS occupies. Press **Select**.
3. Press **Menu>** until you see **SCS MENU 1**, **SCS MENU 2** or **SCS MENU 3**. Press **Select**.
4. Press **Menu>** until you see **SCS OPTIONS**. Press **Select**.
5. Press **Menu>** until you see **MISC. SETTINGS**. Press **Select**.
6. Press **Menu>** until you see **Coax Timeout**. Press **Select**. Enter a value from 0 to 255. Press **Select**. The default is 0 seconds (disabled). You can specify how long the adapter will wait before closing the connection to the host.

8.5 Verifying the Coax Interface with the SIMM for IPDS

To verify the Adapter for SCS configuration, print a *SCS IDB dump* page. Follow these steps:

1. Press **Menu>** until **NETWORK MENU** displays. Press **Select**.
2. Press **Menu>** until **NETWORK OPTION 1** displays. Press **Select**. (This example assumes the Adapter for SCS is installed in option connector 1.)
3. Press **Menu>** until **SCS MENU 1** displays. Press **Select**.
4. Press **Menu>** until you see **TEST OPTIONS**. Press **Select**.
5. Press **Menu>** until you see **SCS IDB DUMP**. Press **Select**.
6. Press **Menu>** until you see **Print**. Press **Select**.

The printer returns to **Ready** when the IDB Dump has been printed.

The SCS IDB dump contains all the current adapter settings including the IPDS Enabled setting and the current Adapter for SCS firmware level. Look for the sentence near the top of the page telling you whether IPDS is active or not active.

Additional Information

Please refer to the *Adapter for SCS, Coax/Twinax Connection, Installation and User's Guide* for a detailed description on how to set up the Adapter for SCS.

8.6 Using the Twinax Interface with IPDS

When twinax attached, the Adapter for SCS will, by default, NOT use the IPDS emulation if it is installed in the printer. The Adapter for SCS must be configured to use the installed SIMM for IPDS before it connects to the host.

8.7 Dual Addresses with the Twinax Interface

When installing a SIMM for IPDS and Coax/Twinax adapter into an Optra printer, it is possible to use both the IPDS emulation and the SCS emulation simultaneously. To use both emulations, supply the IPDS emulation and the SCS emulation with two different twinax addresses.

In the operator panels shown here, address 0 is for the SCS emulation and address 2 is for the IPDS emulation. See the next few pages for instructions on how to change the addresses.

SCS DEV. ADDR. 0 *	IPDS DEV. ADDR. 2 *
-----------------------	------------------------

Note: If the IPDS emulation and the SCS emulation are given the same address, the SCS emulation is used and the IPDS emulation is ignored. The word **DUPLICATE** is displayed in the operator panel.

8.8 Twinax Interface Settings

Only three setting options have to be considered to set up the Adapter for SCS for IPDS operation:

SCS Device Address

IPDS Device Address

IPDS Buffer Sizes

Note: Be certain to set the correct twinax address for both the SCS address and the IPDS address before physically connecting your printer to the twinax wiring system. If you were to incorrectly enter the same address used by another device, you would disable that device. *If you do not know your printer's correct address, see your network administrator.*

8.9 SCS Device Address Setting

The *SCS Device Address* is used to select the twinax device address for the SCS emulation or to disable the SCS emulation if you don't want to use it. From the printer operator panel, do the following:

1. Press **Menu>** until **NETWORK MENU** displays. Press **Select**.
2. Press **Menu>** to display **NETWORK OPTION 1**. Press **Select**. (This example assumes the Adapter for SCS is installed in option connector 1.)
3. Press **Menu>** to display **SCS MENU 1**. Press **Select**.
4. Press **Menu>** to display **SCS OPTIONS**. Press **Select**. Press **Menu>** until you find the following setting:

SCS Dev. Addr. 0
(Address can be "0" – "6" or "Disable")

Note: If the IPDS emulation and the SCS emulation are given the same address, the SCS emulation is used and the IPDS emulation is ignored. The word **DUPLICATE** is displayed in the operator panel.

8.10 IPDS Device Address and IPDS Buffer Sizes Settings

These settings for the Adapter for SCS only appear when the SIMM for IPDS is detected in the printer.

The IPDS Device Address is used to select the twinax address for the IPDS emulation or to disable the IPDS emulation. IPDS Buffer Sizes is used to select the size of the data/command buffer used by the IPDS emulation when receiving data/commands from the twinax host.

From the operator panel, do the following:

1. Press **Menu>** until **NETWORK MENU** displays. Press **Select**.
2. Press **Menu>** to display **NETWORK OPTION 1**. Press **Select**. (This example assumes the Adapter for SCS is installed in option connector 1.)
3. Press **Menu>** to display **SCS MENU 1**. Press **Select**.
4. Press **Menu>** to display **IPDS OPTIONS**. Press **Select**. Press **Menu>** until you find the following settings:

IPDS Dev. Addr. 2
(Address can be “0” – “6” or “Disable”)

Note: If the IPDS emulation and the SCS emulation are given the same address, the SCS emulation will be used and the IPDS emulation will be ignored. The word **DUPLICATE** will display in the operator panel.

IPDS Buf. Size 256
(256 or 1024)

Note: The 1024 byte buffer has the fastest transfer rate, but it isn’t compatible with some older IBM equipment.

IPDS Buf. Size appears as an option in the printer panel only if the *IPDS Dev. Addr.* is enabled (address = 0 - 6).

8.11 Changing the Twinax Timeout Value (For Reference Only)

If necessary you can change the Twinax Timeout value by following these steps:

- 1. Press **Menu>** until **NETWORK MENU** displays. Press **Select**.
- 2. Press **Menu>** until **NETWORK OPTION 1**, **NETWORK OPTION 2** or **NETWORK OPTION 3** displays. The number corresponds to the number of the option connector the Adapter for SCS occupies. Press **Select**.
- 3. Press **Menu>** until you see **SCS MENU 1**, **SCS MENU 2** or **SCS MENU 3**. Press **Select**.
- 4. Press **Menu>** until you see **SCS OPTIONS**. Press **Select**.
- 5. Press **Menu>** until you see **Twinax Timeout**. Press **Select**. The default is 10 seconds. You can specify how long the adapter will wait before closing the connection to the host.

8.12 Twinax device description

When you let the AS/400 auto-create your IPDS device, you will need to alter the following parameters to enable full IPDS printing:

"default" values:

Advanced Function Printing	AFP	*NO
Form Feed	FORMFEED	*CONT

"altered" values:

Advanced Function Printing	AFP	*YES
Form feed	FORMFEED	*AUTOCUT

8.12.1 Example CRTDEVPR for OS/400 V3R7, V4R1, V4R2, V4R3, or V4R4 (locally attached)

```

Device description . . . . . DEVD          > OPTRA
Device class . . . . . DEVCLS          > *LCL
Device type . . . . . TYPE            > *IPDS
Device model . . . . . MODEL          > 0
LAN attachment . . . . . LANATTACH    *LEXLINK
Switched line list . . . . . SWTLINLST
LAN remote adapter address . . . . . ADPTADR
Adapter type . . . . . ADPTTYPE        *INTERNAL
Adapter connection type . . . . . ADPTCNNTYP *PARALLEL
Emulated twinaxial device . . . . . EMLDEV
Advanced Function Printing . . . . . AFP          > *YES
AFP attachment . . . . . AFPATTACH    *WSC
Port number . . . . . PORT            > 2
Switch setting . . . . . SWTSET       > 0
Local location address . . . . . LOCADR
Auxiliary printer . . . . . AUXPRT
Emulating ASCII device . . . . . EMLASCII        *NO
Physical attachment . . . . . ATTACH
Online at IPL . . . . . ONLINE        *YES
Attached controller . . . . . CTL       > CTL01
Language type . . . . . LNGTYPE       *SYSVAL
Print quality . . . . . PRTQLTY       *STD
Font:
  Identifier . . . . .                > 11
  Point size . . . . .                *NONE
Form feed . . . . . FORMFEED          > *AUTOCUT
Separator drawer . . . . . SEPDRAWER  *FILE
Separator program . . . . . SEPPGM    *NONE
  Library . . . . .
Number of drawers . . . . . NBRDRAWER
Printer error message . . . . . PRTERMSG *INQ
Message queue . . . . . MSGQ          QSYSOPR
  Library . . . . . *LIBL
Maximum length of request unit . . . . . MAXLENRU *CALC
Application type . . . . . APPTYPE    *NONE
Activation timer . . . . . ACTTMR     > *NOMAX
Inactivity timer . . . . . INACTTMR  *ATTACH
SNA pass-through device desc . . . . . SNPTDEV  *NONE
SNA pass-through group name . . . . . SNPTGRP  *NONE
Host signon/logon command . . . . . LOGON    *NONE
Pacing . . . . . PACING               7
Line speed . . . . . LINESPEED        *TYPE
Word length . . . . . WORDLEN         *TYPE
Type of parity . . . . . PARITY       *TYPE
Stop bits . . . . . STOPBITS         *TYPE
Host Print Transform . . . . . TRANSFORM *NO
Manufacturer type and model . . . . . MFRTYPMDL

```

8.12.2 Example CRTDEVPRT for OS/400 V3R7, V4R1, V4R2, V4R3, or V4R4 (locally attached, continued)

```

Paper source 1 . . . . . PPRSRC1      *MFRTYPMDL
Paper source 2 . . . . . PPRSRC2      *MFRTYPMDL
Envelope source . . . . . ENVELOPE     *MFRTYPMDL
ASCII code page 899 support . . ASCII899 *NO
Maximum pending requests . . . MAXPNDRQS 6
Print while converting . . . . PRTCVT  *YES
Print request timer . . . . . PRTRQSTMR *NOMAX
Form definition . . . . . FORMDF       F1C10110
  Library . . . . .                *LIBL
  Character identifier:          CHRID
  Graphic character set . . . . .      *SYSVAL
  Code page . . . . .
Remote location:                RMTLOCNAME
  Name or address . . . . .
Local location . . . . . LCLLOCNAME    *NETATR
Remote network identifier . . . RMTNETID *NETATR
Mode . . . . . MODE                 QSPWTR
Workstation customizing object WSCST   *NONE
  Library . . . . .
Authority . . . . . AUT              *LIBCRTAUT
User-defined options . . . . . USRDFNOPT *NONE
User-defined object:            USRDFNOBJ
  Object . . . . .                > OPTRAPRT
  Library . . . . .                > QGPL
  Object type . . . . .            > *PSFCFG
Data transform program . . . . . USRDTATFM *NONE
  Library . . . . .
User defined driver program . . USRDRVPGM *NONE
  Library . . . . .
System driver program . . . . . SYSDRVPGM
Text 'Description' . . . . . TEXT      > 'OPTRA PRINTER'
Dependent location name . . . . . DEPLOCNAME *NONE

```

Additional Information

Please refer to the *Adapter for SCS, Coax/Twinax Connection, Installation and User's Guide* for a detailed description on how to set up the Adapter for SCS.

9 Printer Messages and Problems

Review these problems and solutions for possible answers to your questions.

Use the table below if you are searching for information on a printer message.

Message	Problem Reference
36 Resolution Reduced	2
38I Memory Full	5
Bad Memory System	11
Memory Full	5
Menus Disabled	4
Not enough memory for IPDS	14
Recycle PWR to activate value	15
Resources Lost	16
Two IPDS Sources Recycle Power	8

1. *Problem:*

The print queue stops with a fatal error, which requires operator intervention or the printer stays Busy and displays **IPDS** even when no IPDS jobs are printing.

Solution:

The host still has control of the printer. You need to adjust the Adapter for SCS timeout, the end-of-job timeout on your network adapter, the printer **IPDS Timeout** value, the host port value, or the appropriate timer/timeout value on your IPDS host. You may have to adjust a combination of these to solve the problem.

Adapter for SCS

See page 124 for a description of how to change the **Coax Timeout** value for the Adapter for SCS.

See page 129 for a description of how to change the **Twinax Timeout** value for the Adapter for SCS.

MarkNet internal print server, MarkNet Pro external print server, or MarkNet XLe “end-of-job-timeout”

The recommended setting for the MarkNet internal print server, MarkNet Pro external print server, or MarkNet XLe end-of-job-timeout is 0 (disabled). This allows the host timer/timeout value or printer **IPDS Timeout** value (when using a MarkNet internal print server only) to control when print jobs from another protocol, interface, server, or host can be started.

You may set the MarkNet internal print server, MarkNet Pro external print server, or MarkNet XLe end-of-job-timeout to a value greater than the host timer/timeout value or printer **IPDS Timeout** value (when using MarkNet internal print server only). Errors are very likely to occur when the printer requires user intervention and the intervention is not cleared before the end-of-job-timeout occurs.

Setting the MarkNet internal print server, MarkNet Pro external print server, or MarkNet XLe end-of-job-timeout smaller than the host timer/timeout value or printer **IPDS Timeout** value (when using a MarkNet internal print server only) will result in communication errors after the job has printed.

For additional information on setting the end-of-job-timeout, refer to chapter 7 *Using the SIMM for IPDS with a MarkNet Internal or External Print Server* on page 83.

MarkNet Pro Busy Timeout

The recommended setting for the MarkNet Pro **Busy Timeout** is 0 (disabled). This allows the host timer/timeout value to control when print jobs from another protocol, interface, server, or host can be started.

You may set the MarkNet Pro **Busy Timeout** to a value greater than the host timer/timeout value. Errors are very likely to occur when the printer requires user intervention and the intervention is not cleared before the end-of-job-timeout occurs.

Setting the MarkNet Pro **Busy Timeout** smaller than the host timer/timeout value will result in communication errors after the job has printed.

For additional information on setting the **Busy Timeout**, refer to section 7.3.4 *Setting the MarkNet Pro Busy Timeout* on page 88.

IPDS Timeout = Host Controlled (when using MarkNet internal print server, MarkNet Pro external print server, or MarkNet XLe)

Note: The printer defaults to **Host Controlled** when receiving IPDS jobs on port 9100 or 9102.

If you selected any other **IPDS Timeout** value, go to *IPDS Timeout = 15 seconds to 10 minutes* on page 136.

If you selected the **IPDS Timeout** value of **Host Controlled** to allow the host to directly control ending (disconnecting) a LAN session, follow the steps below to correct the problem.

1. Adjust the MarkNet internal print server, MarkNet Pro external print server, or MarkNet XLe timeout value to 0 (disabled). See *7 Using the SIMM for IPDS with a MarkNet Internal or External Print Server* on page 83 for additional information.
2. Adjust the MarkNet Pro Busy Timeout to (0) disabled. See section 7.3.4 *Setting the MarkNet Pro Busy Timeout* on page 88 for additional information.
3. Change the host port setting to 9100, 9102, or 9600. Refer to **IPDS Timeout** on page 40 for further information on the selection of ports.
4. Correct the appropriate host timer/timeout value as shown below.

PSF/400 with OS/400™ V3R1 or V3R6

WRKAFP2: Inactivity Timer (INACTTMR) *SEC15 or *SEC30

PSF/400 with OS/400 V3R2, V3R7, V4R1, V4R2, V4R3, or V4R4

CRTPSFCFG: Release Timer (RLSTMR) *SEC15 or *SEC30

PSF/MVS

PSF Startup Proc: Disconnect Interval (DISCINTV) 15 seconds

PSF/2

TCP/IP Settings: Connect Timeout 30 seconds

Tuning Option: Job Interval Shutdown Timer 30 seconds

PSF/AIX

SMIT Printer Def: Connect Timeout 30 seconds

IPDS Timeout = 15 seconds to 10 minutes (when using a MarkNet internal print server only)

If you selected the **IPDS Timeout** value of **Host Controlled** to allow the host to directly control ending (disconnecting) a LAN session, go to *IPDS Timeout = Host Controlled* on page 135.

If you selected an **IPDS Timeout** value of **15 seconds** to **10 minutes** to allow the printer IPDS emulation to determine when an IPDS LAN session times out, follow the steps below to correct the problem.

1. Adjust the MarkNet internal print server end-of-job timeout value to 0 (disabled). See *7 Using the SIMM for IPDS with a MarkNet Internal or External Print Server* on page 83 for additional information.
2. Change the host port setting to 9600. Refer to **IPDS Timeout** on page 40 for further information on the selection of ports.
3. Correct the appropriate host timer/timeout value as shown below.

Note: The host timer/timeout values below should not be used with a host port value of 9100 or 9102.

PSF/400 with OS/400 V3R1 or V3R6

WRKAFF2: Inactivity Timer (INACTTMR) *NOMAX

PSF/400 with OS/400 V3R2, V3R7, V4R1, V4R2, V4R3, or V4R4

CRTPSFCFG: Release Timer (RLSTMR) *NOMAX

PSF/MVS

PSF Startup Proc: Disconnect Interval (DISCINTV) 0

PSF/2

TCP/IP Settings: Connect Timeout 0
Tuning Option: Job Interval Shutdown Timer 9999

PSF/AIX

SMIT Printer Def: Connect Timeout 0

2. *Problem:*

The message **36 Resolution Reduced** displays and the printer stops.

Solution:

The printer memory is full and the page cannot be printed at the selected IPDS Resolution. Press **Go** and the page is printed at a lower resolution. If this is a constant problem and you want to print at the higher resolution, you need to add more memory to the printer.

This message is an informational message on some Optra models. The printer will display the message and continue printing the job without operator intervention. If this message continues to appear when printing jobs, add more memory to the printer.

For information on the minimum recommended installed memory, see appendix C. *Recommended memory* on page 171.

3. *Problem:*

Sometimes an IPDS memory exception is reported to the host.

Solution:

The memory may be used by PCL or PostScript. It cannot be used by IPDS. You need to do one or more of the following:

- A. Set **Resource Save** to “Off” to allow permanent downloaded resources from PostScript and PCL jobs to be deleted. Resource Save is found under **SETUP MENU** on the printer operator panel. Try reprinting the job after powering the printer OFF and ON.
- B. There may be insufficient printer memory to print the IPDS job with the selected IPDS resolution. Select a lower IPDS Resolution and try reprinting the job. If using the Adapter for SCS, you must power the printer OFF and ON for this change to take effect.

- C. There may be insufficient printer memory to temporarily store IPDS resources and print non-IPDS jobs. Add more memory to the printer. For information on recommended memory settings refer to appendix C. *Recommended memory* on page 171
- D. The host may be downloading more IPDS resources than can be held in the printer's memory. Add more memory to the printer. For information on the minimum recommended installed memory, see appendix C. *Recommended memory* on page 171.

4. *Problem:*

I can't cancel an IPDS job from the printer operator panel. When I try to enter the menus with <**Menu** or **Menu**>, I get the message **Menus Disabled**.

Solution:

You must be in an IPDS session (IPDS displayed on the front panel) to cancel an IPDS job. If the IPDS code level is 8491 or below, the IPDS cancel function is not available. Hold and cancel the job from the host. IPDS code updates are available on the Lexmark web site at <http://www.lexmark.com>.

5. *Problem:*

Sometimes the messages (**38I Memory Full** or **Memory Full**) display on the printer operator panel and the connection with the printer is lost. What do these messages mean? What should I try?

Solution:

38I Memory Full - this message is generated when there is insufficient memory to print the page.

Memory Full - this message means the printer could not reestablish connection to PSF, the resources have been lost. The printer is disconnected from the host.

The cause for these messages is insufficient memory to print the IPDS job or temporarily store the resources. The memory is probably being used to store PostScript, PCL and/or IPDS resources.

- A. Set **Resource Save** to “Off” to allow permanent downloaded resources from PostScript and PCL jobs to be deleted. **Resource Save** is found under **SETUP MENU** on the printer operator panel. Try reprinting the job after powering the printer OFF and then ON.
- B. Add more memory to the printer.
- C. If a LAN connection is used through a MarkNet internal print server card, try setting **IPDS Timeout** to **Host Controlled** and set the host release timer to a small value. This means that the host deletes the downloaded IPDS resources when disconnecting. When a new IPDS job is sent from the host new IPDS resources are downloaded to the printer.

6. Problem:

If I want to work with the menus for the Adapter for SCS, how do I know whether to choose **NETWORK OPTION 1**, **NETWORK OPTION 2** or **NETWORK OPTION 3**?

Solution:

- A.** Press **Menu>** until you see **TESTS MENU**. Press **Select**.
- B.** Press **Menu>** until you see **Print Menus**. Press **Select**. The operator panel displays the message **Printing Menu Settings**. A listing of the menu settings indicating what options are installed in the different connectors prints.

Tip: Place a label on the front of the printer indicating the connector locations of all installed options.

7. Problem:

Before installing the SIMM for IPDS, my PostScript and PCL jobs printed correctly. Now some large PostScript and PCL jobs don't print.

Solution:

- A.** If you have set host and printer settings to temporarily store IPDS resources when printing non-IPDS jobs, change these settings to allow the host to delete the IPDS resources before printing non-IPDS jobs. See **IPDS Timeout** on page 40 for more information on setting printer values and the appropriate host installation section to change the host timeout value.
- B.** Add more memory to the printer. This will allow IPDS resources to be temporarily stored and more complex non-IPDS jobs to print.

8. *Problem:*

The message **Two IPDS Sources Recycle Power** displays and the printer stops.

Solution:

The SIMM for IPDS supports only LAN attached hosts or a coaxial/twinaxial attached host. You must be trying to print from both:

- a coaxial/twinaxial attachment using an Adapter for SCS and *either*
- a LAN attachment using a MarkNet internal print server Token-Ring **or** Ethernet adapter *or*
- a parallel attachment using a MarkNet Pro or MarkNet XLe.

9. *Problem:*

I'm trying to set up a remote printer with a MarkNet internal print server, MarkNet Pro external print server, or MarkNet XLe (named Optra) from my AS/400. When I try to print to it, I get the message:

“All sessions ended for device Optra”

“Bind sense code ... received for mode QSPWTR device Optra”

“Writer...did not end normally”

Solution:

A remote output queue created using CRTOUTQ and a PSFCFG device created using WRKAFF2 or CRTPSFCFG have the same user defined name. You must use a unique name for the remote output queue for an ASCII device using TCP/IP and the AS/400 Host Print Transform. This cannot be the same name used to define the printer as an IPDS printer with WRKAFF2 or CRTPSFCFG.

10. Problem:

Intervention Required messages (printer offline, paper jam, out of paper, cover open, etc.) from the printer are causing problems on the IPDS host.

Solution:

You can suppress this message reporting by selecting "Do Not Report" for Intervention Required. You would then rely on users noticing the status of the printer.

11. Problem:

The message **Bad Memory System** displays and the printer stops.

Solution:

The IPDS memory has been corrupted. Power the printer OFF and then ON.

12. Problem:

The IPDS host stops when it attempts to connect to the printer when using the MarkNet XLe adapter.

Solution:

The MarkNet adapter is not establishing a bi-directional connection with the printer. Power ON the MarkNet XLe adapter (90 seconds) *before* powering ON the printer.

13. Problem:

IPDS jobs will not work with Job Buffering set to **On**.

Solution:

The host expects immediate responses from the printer during job processing. Buffering a job to the disk delays the return of these responses.

Set **Job Buffering = Off** under the **NETWORK OPTION X** menu.

14. Problem:

I get the message **Not enough memory for IPDS**.

Solution:

The SIMM for IPDS requires a minimum of 4 MB of installed memory. Add additional memory to activate IPDS printing. If less than 4 MB is installed, the IPDS Menu settings can still be accessed and configured, but IPDS jobs can not be printed from the host. Jobs may be printed using other emulations.

15. Problem:

I get the message **Recycle PWR to activate value**.

Solution:

A host session was established and was idle when you changed settings. The settings changed had already been reported to the host.

Power the printer OFF then ON. This causes the host to request the new printer settings.

16. Problem:

The message **Resources Lost** appears on the display before an IPDS job prints.

Solution:

IPDS resources were deleted by the printer.

- A.** Try to determine what is causing the resources to be deleted. See the section *4.3.14 IPDS Timeout* on page 40 for additional information.
- B.** Non-IPDS jobs may cause IPDS resources to be deleted. Add additional memory. Refer to appendix *C. Recommended memory* on page 171.

10 Warranty

The limited warranty you received with your printer gives warranty terms and conditions. For warranty information, refer to your printer documentation.

Appendices

A. Technical Specifications

A.1 Printers Supported

- Optra S
- Optra Se 3455
- Optra K 1220

This option provides customers with an affordable solution for AFP/IPDS distributed or LAN printing with IPDS emulation.

A.2 Product Description

The SIMM for IPDS is an option which is installed in the printer optional firmware SIMM connector. With the SIMM (Single Inline Memory Module) and either a MarkNet internal print server (Ethernet or Token-Ring), MarkNet Pro external print server (Ethernet or Token-Ring), MarkNet XLe (Ethernet or Token-Ring) external print server or the Coax/Twinax Adapter for SCS, the printer becomes an IBM host workstation printer capable of printing AFP or IPDS documents from an AS/400 or System/390 computer. With the appropriate host software and this option, the Optra printer can emulate an IBM 43xx, 311x, 3812/16 or 4028 printer.

The SIMM for IPDS supports scalable fonts and higher print resolutions. The default resolution is selected through an **IPDS MENU** setting.

The printer can be configured to take advantage of additional memory to improve performance for complex IPDS print jobs with host resources such as fonts or page segments.

The SIMM for IPDS supports the IPDS data and resource towers. Fonts and other resources can be downloaded to the printer.

If your printer supports a duplex option, duplex printing is supported for all IBM printer emulations dependent on host software. Up to five input sources are supported

through Print Services Facility (PSF) except for PSF/400, which supports four input sources.

A.3 IPDS Features List

- Resource Towers: Page Segments, Overlays, and Loaded Fonts
- Data Towers: Text, Graphics, Bar Codes, IM Image, and IO Image
- IPDS Exception Reporting

A.4 Compatibility

Support Notes:

1. When the SIMM for IPDS is set to emulate an IBM 43xx, 311x, 3812/16 or 4028, the emulated printer function depends on the IBM host software.
2. IBM 43xx printer = IBM 4312, 4317 or 4324 printer.
3. IBM 311x printer = IBM 3112 or 3116 printer.
4. IBM 381x printer = IBM 3812 or 3816 printer.

Compatible Adapters:

- MarkNet internal print server (Ethernet or Token-Ring)
- MarkNet Pro external print server (Ethernet or Token-Ring)
- MarkNet XLe (Ethernet or Token-Ring)
- Coax/Twinax Adapter for SCS

A.5 For Direct Network Attachment

Hardware Compatibility

When the printer contains an optional SIMM for IPDS, it attaches to a network using a MarkNet internal print server or a MarkNet Pro external print server or MarkNet XLe external print server.

The optional MarkNet internal print server, MarkNet Pro and MarkNet XLe external print servers support Token-Ring (4Mbps or 16 Mbps), Ethernet 10Base-T/10 Base2 and Ethernet 100Base-TX/10Base-T (MarkNet internal print server only) with the following Network Operating Systems: Novell NetWare (including NetWare Directory Services - NDS), IBM OS/2 Warp (LAN) Server, Microsoft Windows NT Server, TokenTalk™ and EtherTalk™, and the following UNIX platforms: AIX, Digital, NCR, HP-UX, SCO, Silicon Graphics, SunOS, Sun Solaris, Sun Solaris x86 and UnixWare.

Software Compatibility

The IBM host software requirements for AFP/IPDS printing when the SIMM for IPDS is set to emulate an IBM 43xx, 311x, 381x or 4028 printer are as follows:

- Print Services Facility (PSF)/MVS Version 2.2 or greater
- Application System AS/400 Operating System OS/400 V3R2, V3R1, V3R6, V3R7, V4R1, V4R2, V4R3, V4R4 or greater through PSF/400
- PSF/2 2.0 or greater
- PSF/6000(for AIX) 2.1 or greater

Note: With AS/400 OS/400 V3R1 or OS/400 V3R6, to print IPDS over TCP/IP through PSF/400, PTF SF29249 - WRKAFF2 is required.

A.6 For Direct Twinaxial Attachment

Hardware Compatibility

When the printer contains the optional SIMM for IPDS and the Adapter for SCS with a twinaxial cable, the printer attaches to the following IBM hardware:

- AS/400 Twinaxial Workstation Controllers
- AS/400 Advanced System/36 Twinaxial Workstation Controller
- 5494 Remote Control Unit
- 5394 Remote Control Unit
- AS/Entry Workstation Control Unit
- System/36 Workstation Control Unit (with IBM 4028 emulation)

Note: There must be separate twinax addresses, one for the Adapter for SCS and another for the SIMM for IPDS.

Software Compatibility

The IBM host software requirements for AFP/IPDS printing when the SIMM for IPDS is set to emulate an IBM 43xx, 311x, 381x or 4028 printer are as follows:

- AS/400 PSF/400 V3R2, V3R1, V3R7, V3R6, V4R1, V4R2, V4R3, V4R4 or greater
- AS/400 OS/400 V4R4, V4R3, V4R2, V4R1, V3R2, V3R1, V3R7, V3R6, V3.0.5, V2R3, V2R2, V2R1 or greater
- AS/400 OS/400 V3R6 with System Support Program (SSP) Release 7.5*
- AS/400 SSP Release 7.1*
- AS/Entry SSP Release 6.0* or later
- System/36 SSP Release 5.1* or later (with IBM 4028 emulation)

* IPDS Advanced Function PRPQ is required

Note: For OS/400 V2R2, only simplex IPDS printing is supported. For duplex support using IPDS with the Coax/Twinax Adapter for SCS and the SIMM for IPDS, AS/400 PTFs are required for OS/400 V2R3 and OS/400 V3R0.5 for AFP=NO.

A.7 For Direct Coaxial Attachment

Hardware Compatibility

When the printer contains the SIMM for IPDS and the Adapter for SCS with a coaxial cable, the printer attaches to the following IBM hardware:

- IBM 3174 Control Unit
- IBM 3274 Control Unit
- 9221 ES/9000 Work Station Subsystem Controller
- ES/9370 Work Station Subsystem Controller
- 9371 using the 3270 Adapter
- PS/2™ with Micro Channel PSA Card

Software Compatibility

The IBM Host software requirements for the AFP/IPDS printing when the SIMM for IPDS is set to emulate an IBM 43xx, 311x, 3812/16 or 4028 printer are as follows:

- PSF/MVS V2.2, V2.1.1, V2.1.0
- PSF/VSE V2.2.1, V2.2.0
- PSF/VM V2.1.1, V2.1.0 (with maintenance)
- PSF/2 with PSA Card
- VTAM Printer Support
(VPS - Levi, Ray & Shoup (LRS) software)
- GDDM V2.3 with APARs
- RSCS V2.2 or later

B. Font and Code Page Information

B.1 International Language Definitions

The SIMM for IPDS supports a variety of languages, which are grouped below into descriptions used by IBM in their materials.

B.1.1 Latin 1

Afrikaans	Belgian (French and Dutch)
Brazilian Portuguese	Canadian English
Canadian French	Catalan
Danish	Dutch
Finnish	French
German	Icelandic
Italian	Japanese English
Latin American Spanish	Norwegian
Portuguese	Spanish (Castillian)
Swedish	United Kingdom English
United States English	Swiss (German, French and Italian)

B.1.2 Latin 2/ROECE

Albanian	Croatian
Czech	East German
Hungarian	Polish
Romanian	Serbian
Slovak	Slovenian

B.1.3 Latin 3

Esperanto	Maltese
Turkish	

B.1.4 Latin 4

Estonian	Greenlandic
Lappish	Latvian
Lithuanian	

B.1.5 Latin 5

Turkish	
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B.1.6 Baltic Multilingual (Latin 6)

Latvian	Lithuanian
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B.1.7 Cyrillic

Bulgarian	Byelorussian
Macedonian	Russian
Serbo-Croatian	Ukrainian

B.1.8 Greek

Greek	
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B.2 Font Support Overview

There are 3 major sets of fonts supported by the SIMM for IPDS.

- IBM 4028 Compatibility Font Set
- IBM 38xx Compatibility Font Set
- IBM Core Interchange Font Set
- IBM Coordinated Font Set

The 4028 Compatibility Font Set is compatible with the 4028 and the 3112/16 printers. These fonts are supported as 300 dpi bitmaps. For some of these fonts the IPDS can use an equivalent scalable font. This is controlled by the **Font Type** option under **IPDS MENU**. When this option is set to **Use Scalable**, improved font quality will result, since the scalable fonts use the higher resolution of the printer. This font set is available in 4028, 3112/16 and 43xx mode.

The 3812/16 Compatible Font Set is compatible with the 3812/16 printer fonts. These 240 dpi fonts are converted to the IPDS working resolution (600 or 1200 dpi). Some of the fonts can also be replaced by Scalable Equivalents for better quality. This font set is only available in 3812/16 mode.

All printer emulations support the Core Interchange Font Set and the Coordinated Font Set.

B.3 IBM 4028 Compatibility IPDS Resident Font Set Fonts (Latin 1)

The bitmap fonts included in the 4028 Compatibility Font Set are supporting the 300 dpi bitmap font in the 4028, 3112/16 and 43xx printer series. Most of these fonts support the Latin 1 languages.

Typeface	FGID	Width	Pitch/Point	Codepage support
OCR-B	3	144	10.0	893, 877
Courier 10	11	144	10.0 *	G2, 259
Prestige Pica	12	144	10.0 *	G2, 259
Courier Italic 10	18	144	10.0 *	G2
OCR-A	19	144	10.0	892, 876
Courier Bold 10	46	144	10.0 *	G2
APL 12	76	120	12.0	310
Courier 12	85	120	12.0 *	G2, 259
Prestige Elite	86	120	12.0 *	G2, 259
Courier Italic 12	92	120	12.0 *	G2
Prestige Elite Bold	111	120	12.0 *	G2
Prestige Elite Italic	112	120	12.0 *	G2
Boldface	159	120	PS	G2
Prestige PS	164	120	PS	G2
Gothic-text 13	203	108	13.3 %	G3
Prestige	221	96	15.0 *	G1
Courier 15	223	96	15.0 *	G1
Courier 17	254	84	17.1 *	G1
Prestige	256	84	17.1 *	G1
Letter Gothic 20	281	72	20.0 *	G1
Gothic-text 20	283	72	20.0 %	G3
Gothic-text 27	290	54	26.7 %	G3
Times Roman	5687	40	6 pt #	G3
Times Roman	5687	53	8 pt #	G3
Times Roman	5687	67	10 pt #	G3
Times Roman	5687	80	12 pt #	G3
Times Roman Bold	5707	67	10 pt #	G3
Times Roman Bold	5707	80	12 pt #	G3
Times Roman Bold	5707	93	14 pt #	G3
Times Roman Bold	5707	120	18 pt #	G3
Times Roman Bold	5707	160	24 pt #	G3
Times Roman Italic	5815	67	10 pt #	G3
Times Roman Italic	5815	80	12 pt #	G3
Times Roman Bold Italic	5835	67	10 pt #	G3
Times Roman Bold Italic	5835	80	12 pt #	G3

G1 = All code pages listed under the Core Font Set "Latin 1 Country Extended Code Pages" are supported.

- G2 = All code pages in group G1 plus code page 1002.
- G3 = All code pages in group G2 plus code pages 850 and 437.
- * = These fonts exist in both bitmapped and scalable (outline) versions dependent on the **Font Type** setting.
- # = For these fonts the scalable Times New Roman Typefaces in the appropriate sizes from the Core Font Set are always used.
- % = These fonts only exist in scalable versions.

In addition to the above set of fonts, a number of other FGIDs are also recognized by the IPDS printer emulation. These are simulated by substitution with one of the above fonts or by bolding one of the above fonts. See *B.9 Font Substitution* on page 167.

If an FGID is not available, the font will be mapped to another font either at the host or in the printer using a font best-fit algorithm.

B.3.1 Special Code Pages Supported by the 4028 Compatibility Font Set

Codepage	GCSGID	Language / Function
259	340	Symbol Set 7
310	963	APL
892	968	OCR-A
893	969	OCR-B
1002	1132	DCF Rel. 2 Compatibility

B.4 IBM 3812/16 Compatibility Font Set

When the 3812/16 emulation is selected, these bitmap fonts replace the 4028 Compatibility Font Set.

Typeface	FGID	Width	Pitch/Point	Codepage support
OCR-B	3	144	10.0	893
Orator	5	144	10.0	**
Courier 10	11	144	10.0 *	**
Courier Italic 10	18	144	10.0 *	**
OCR-A	19	144	10.0	892
Gothic-text 10	40	144	10.0	**
Katakana-gothic 10	44	144	10.0	290
APL 10	45	144	10.0	293
Gothic-text 12	66	120	12.0	**
Gothic Italic 12	68	120	12.0	**
Script 12	84	120	12.0	**
Courier 12	85	120	12.0 *	**
Prestige 12	86	120	12.0 *	**
Letter-gothic 12	87	120	12.0 *	**
Prestige Italic 12	112	120	12.0	**
Boldface Italic	155	120	PS	**
Essay	160	120	PS	**
Essay Italic	162	120	PS	**
Essay Light	173	120	PS	**
Document	175	120	PS	**
Gothic-text 13	204	108	13.3	**
Gothic-text 15	230	96	15.0	**
Courier 5	244	288	5.0	**
Courier 17	252	84	17.1 *	**
Courier 17ss	254	84	17.1	**
APL 20	280	72	20.0	293
Gothic-text 20	281	72	20.0	**
Gothic-text 27	290	54	26.7	**
Sonoran serif	751/4407	54	8 pt *	**
Sonoran serif	1051/4407	66	10 pt *	**
Sonoran serif bold	1053/4427	66	10 pt *	**
Sonoran serif italic	1056/4535	66	10 pt *	**
Sonoran serif	1351/4407	78	12 pt *	**
Sonoran serif bold	1653/4427	108	16 pt *	**
Sonoran serif bold	2103/4427	162	24 pt *	**

- * = These fonts exist in both bitmap and scalable (outline) versions. Use depends on the **Font Type** setting. For the Sonoran fonts the character escapement values may not match the host values when the scalable versions are selected.

** = Most of the 3812/16 Compatibility fonts support the Latin 1 set of code pages. This includes the euro code pages 1140 – 1149.

In addition to the above set of fonts a number of other FGIDs are also recognized by the IPDS. These are simulated by substitution with one of the above fonts or by bolding one of the above fonts.

B.4.1 Special Code Pages Supported by the 3812/16 Compatibility Font Set

Codepage	GCSGID	Language / Function
290	332	Japan Katakana
293	380	APL
892	968	OCR-A
893	969	OCR-B

B.5 IBM Core Interchange Resident Scalable Font Set

The typefaces defined for the IBM Core Set font provide support for the following groups of languages and are supported in the Optra printer: Latin 1 including DCF, Latin 2, Latin 3, Latin 4 and Latin 5, Cyrillic, Baltic, Greek and symbols. Symbols are provided in medium and bold typefaces only.

IBM Typeface	FGID
Courier Italic Bold	428
Courier Italic Medium	424
Courier Roman Bold	420
Courier Roman Medium	416
Helvetica Italic Bold	2307
Helvetica Italic Medium	2306
Helvetica Roman Bold	2305
Helvetica Roman Medium	2304
Times New Roman Bold	2309
Times New Roman Italic Bold	2311
Times New Roman Italic Medium	2310
Times New Roman Medium	2308

These fonts are supported through country or language extended code pages as defined on the next pages.

To access the IBM Core Set, the FGIDs above with a font width or point size value must be used. If an FGID is not available, the font is mapped to another font either at the host or in the printer using a font best-fit algorithm.

B.6 IPDS Core Font Set Code Page Support

The code pages supported by the Core Font Set are listed below.

A selection of these code pages can be set as default from the front panel. See **IPDS MENUS** on page 31 for those code pages, which can be selected.

B.6.1 Latin 1 Country Extended Code Pages

Languages	Codepage	GCSGID
Austrian / German	273	697
Austrian / German *	1141	695
Austrian / German Alternate	286	317
Belgian	274	697
Brazilian Portuguese	275	697
Canadian French	260	341
Danish / Norwegian	277	697
Danish / Norwegian *	1142	695
Danish / Norwegian Alternate	287	321
English (English / US / Canadian / Dutch / Portuguese)	037	697
English (UK / US / Canadian / Dutch /Portuguese) *	1140	695
English (UK)	285	697
English (UK) *	1146	695
Finnish / Swedish	278	697
Finnish / Swedish *	1143	695
Finnish / Swedish Alternate	288	325
French / Catalan	297	697
French / Catalan *	1147	695
French Alternate	276	277
Icelandic	871	697
Icelandic *	1149	695
International #1	256	337
Italian	280	697
Italian *	1144	695
Japanese (English)	281	697
Latin 0 (EBCDIC, euro support)	924	695
Multilingual (Belgian / Dutch / Swiss)	500	697
Multilingual (Belgian / Dutch / Swiss) *	1148	695
Portuguese	282	697
Spanish	284	697
Spanish *	1145	695
Spanish Alternate	289	329
US (ASCII 7 bit) in EBCDIC	038	103

* These code pages support the euro symbol. They are only available on IPDS code level 8223 and above.

B.6.2 Latin 1 EBCDIC Publishing Code Pages

Languages	Codepage	GCSGID
Belgian	383	1145
Brazilian Portuguese	384	1145
Canadian French	385	1145
Castilian Spanish	392	1145
Danish / Norwegian	386	1145
Finnish / Swedish	387	1145
French / Catalan	388	1145
German	382	1145
Italian	389	1145
Japanese (Latin)	390	1145
Latin America Spanish	393	1145
Multilingual (Belgian / Dutch / Swiss)	361	1145
Portuguese	391	1145
UK English	394	1145
US / Canadian English	395	1145

B.6.3 Latin 1 ASCII Code Pages

Languages	Codepage	GCSGID
ASCII (7 bit)	367	103
Canadian French PC	863	993
Icelandic PC	861	991
ISO Latin 1	819	697
Multinational PC	850	980
Nordic PC	865	995
PC	437	919
PC Desktop Publishing	1004	1146
Portuguese PC	860	990

B.6.4 Latin 2, 3, 4, 5 Code Pages

Languages	Codepage	GCSGID
Eastern Europe PC	852	982
Latin 2 ISO (ANSI)	912	959
Latin 2 Multilingual	1110	1111
Latin 2 Multilingual EBCDIC	870	959
Latin 3 Multilingual EBCDIC	905	1286
Latin 3 Multilingual PC	853	983
Latin 4 EBCDIC	1069	1256
Latin 4 ISO (ASCII)	914	1256
Latin 5 EBCDIC	1026	1152
Latin 5 ISO (ANSI)	920	1152
Latin 5 PC	857	987

B.6.5 Latin EBCDIC DCF Code Pages

Languages	Codepage	GCSGID
DCF Rel. 2 Compatible	1002	1132
GML List symbols	1039	1258
Text with numeric spacing	1068	1269
US Text Subset	1003	1133

B.6.6 Cyrillic, Greek and Baltic Language Code Pages

Languages	Codepage	GCSGID
Baltic Multilingual EBCDIC	1112	1305
Cyrillic #2 PC	866	996
Cyrillic ISO ASCII	915	1150
Cyrillic multilingual	880	960
Cyrillic multilingual	1025	1150
Cyrillic PC	855	985
Estonia EBCDIC	1122	1307
GML List symbols	1039	1258
Greek	875	925
Greek 183	423	218
Greek ISO (ASCII)	813	925
Greek PC	851	981
Greek PC	869	998

B.6.7 Arabic Code Pages

Languages	Codepage	GCSGID
Arabic Bilingual	420	235
Arabic ISO (ASCII)	1008	1162
Arabic PC	864	994
GML List symbols	1039	1258

Note: Arabic code pages/fonts are only supported in an optional font package. The IPDS printer emulation accesses these fonts from a user flash memory installed in the flash memory connector.

B.6.8 Hebrew Code Pages

Languages	Codepage	GCSGID
GML List symbols	1039	1258
Hebrew	424	941
Hebrew ISO / ASCII	916	941
Hebrew PC	856	986
Hebrew PC	862	992
Hebrew Publishing	1028	1199
Hebrew Set A	803	1147

Note: Hebrew code pages/fonts are only supported in an optional font package. The IPDS printer emulation accesses these fonts from a user flash memory installed in the flash memory connector.

B.6.9 Symbol Code Pages

Languages	Codepage	GCSGID
GML List symbols	1039	1258
Symbol Set 7 ASCII	899	340
Symbol Set 7 Modified PC	1092	1191
Symbols Adobe	1087	1257
Symbols Adobe ASCII	1038	1257
Symbols Set 7	259	340
Symbols Set 7 Modified	1091	1191

B.7 IBM Coordinated Font Set

The IBM Coordinated Set is supported in Latin 1 Country Extended Code Pages, Publishing, DCF code pages and Latin 1 ASCII only. See section *B.5 IBM Core Interchange Resident Scalable Font Set* for a complete listing of fonts.

Typefaces in Outlines (Latin 1)	FGID	GCSGID
Gothic Text (simulated)	304	2039
Letter Gothic	400	2039
Letter Gothic Bold	404	2039
Letter Gothic Italic (Additional)	408	2039
Prestige	432	2039
Prestige Bold	318	2039
Prestige Italic	319	2039

These fonts are all scalable. To access the IBM Coordinated Set, the FGIDs above with the width or point size must be used.

Boldface, APL and OCR fonts are only supported using bitmaps from the Compatible Font Sets.

If an FGID is not available, the font will be mapped to another font either at the host or in the printer using a font best-fit algorithm.

B.8 Postnet Font Support

The Postnet bar code font is available in all emulations on IPDS code level 8223 and above.

Typeface	FGID
Postnet	4094

Code pages that can be used with FGID 4094 include the following.

Codepage	GCSGID	Function
1301	1451	Postnet bar code
1302	1452	Facing Identification Marks
1303	1453	Business Reply Bar

In addition the Postnet font can also be used to replace numeric characters on other code pages.

B.9 Font Substitution

If a font is not available, a different font is substituted using a best-fit algorithm. This substitution is based on the FGID and the font width.

If any of the font IDs in the following tables are used in a document, they are mapped to the substituted font id given.

B.9.1 4028 / 31xx / 43xx Font substitution

The following substitution IDs are used if the **Font Type** option is set to **Use Scalable**.

Typestyle	Original FGID	Substituted FGID/Font Width	
Gothic Text 12 Bold	69	85 b	120 fw
Gothic Text 13	204	203	108 fw
Light Gothic 12	91	112	120 fw
Math Symbol 12	80	86	120 fw
Roman Text	41	12	144 fw
Serif Text 10 Italic	43	18	144 fw
Serif Text 12 Bold	72	85 b	120 fw
Serif Text 12 Italic	71	92	120 fw
Sonoran-Serif 8 pt	751 or 4407 54 fw	5687	53 fw
Sonoran-Serif 10 pt	1051 or 4407 66 fw	5687	67 fw
Sonoran-Serif 12 pt	1351 or 4407 78 fw	5687	80 fw
Sonoran-Serif.Bold 10 pt	1053 or 4427 66 fw	5707	67 fw
Sonoran-Serif.Bold 16 pt	1653 or 4427 108 fw	5707	108 fw
Sonoran-Serif.Bold 18 pt	1803 or 4427 120 fw	5707	120 fw
Sonoran-Serif.Bold 24 pt	2103 or 4427 162 fw	5707	60 fw
Sonoran-Serif.Italic 10 pt	1056 or 4535 66 fw	5815	67 fw
Times Roman 6 pt	760	5687	40 fw
Times Roman Bold 12 pt	761	5707	80 fw
Times Roman Bold 14 pt	762	5707	93 fw
Times Roman Bold Italic 10 pt	764	5835	67 fw
Times Roman Bold Italic 12 pt	765	5835	80 fw
Times Roman Italic 12 pt	763	5815	80 fw

b = Bold

The following table applies only if the **Font Type** option is set to **Use Bitmaps**.

Typestyle	Original FGID	Substituted FGID/Font Width	
Courier 12 Bold	108	85 b	120 fw
Courier 17.1 Bold	253	254 b	84 fw
Letter Gothic 12	87	85	120 fw
Letter Gothic 12 Bold	110	85 b	120 fw
Prestige Pica Bold	60	12 b	144 fw

b = Bold

B.9.2 3812/16 Font substitution

The following substitution IDs are used if the **Font Type** option is set to **Use Scalable**.

Typestyle	Original FGID	Substituted FGID/Font Width	
Matrix Gothic 10	26	40	144 fw
Roman Text	41	40	144 fw
Serif Text 10	42	40	144 fw
Serif Text 10 Italic	43	68	144 fw
Serif Text 12	70	66	120 fw
Serif Text 12 Italic	71	68	120 fw
Serif Text 12 Bold	72	69	120 fw
Math Symbol 12	80	86	120 fw
Light Gothic 12	91	112	120 fw
Elite 12	107	85	120 fw
Bold PS	176	159	120 fw
Bold Italic PS	177	155	120 fw
Math Symbol 15	225	86	120 fw

The following table applies only if the **Font Type** option is set to **Use Bitmaps**.

Typestyle	Original FGID	Substituted FGID/Font Width	
Prestige Pica Bold	60	12 b	144 fw
Courier 12 Bold	108	85 b	120 fw
Letter Gothic 12 Bold	110	87 b	120 fw
Courier 17.1 Bold	253	252 b	84 fw

C. Recommended memory

Minimum total recommended printer memory for each resolution setting. Additional memory above the minimum recommended may be required for printing complex jobs.

300 dpi,	Simplex	4MB
300 dpi,	Simplex and saving IPDS resources*	8MB
300 dpi,	Duplex	4MB
300 dpi,	Duplex and saving IPDS resources*	8MB
600 dpi,	Simplex	4MB
600 dpi,	Simplex and saving IPDS resources*	12MB
600 dpi,	Duplex	4MB
600 dpi,	Duplex and saving IPDS resources*	12MB
1200 dpi,	Simplex	8MB
1200 dpi,	Simplex and saving IPDS resources*	16MB
1200 dpi,	Duplex	12MB
1200 dpi,	Duplex and saving IPDS resources*	16MB

* Saving of IPDS resources is activated when the host timeout and printer **IPDS Timeout** values are properly set. See **IPDS Timeout** on page 40 and the appropriate host operating system setup section for more information.

D. Related Publications

D.1 Lexmark Publications

<i>Optra S User's Guide (1250, 1620, 1650, 2420, 2450)</i>	<i>P/N 43H1702</i>
<i>Optra S User's Guide (1255, 1625, 1855, 2455)</i>	<i>P/N 43H5318</i>
<i>Optra Se 3455 User's Guide</i>	<i>P/N 11K0900</i>
<i>Optra K 1220 User's Guide</i>	<i>P/N 11A4040</i>
<i>Network Adapter Hardware Setup</i>	<i>P/N 16A0120</i>
<i>Network Adapter User's Guide</i>	<i>P/N 16A0042</i>

D.2 IBM Publications

<i>Print Services Facility/MVS: Update Guide Version 2, Release 2, Modification 0</i>	<i>G544-3984-01</i>
<i>Print Services Facility/MVS: System Programming Guide Version 2, Release 2, Modification 0</i>	<i>S544-3672-03</i>
<i>PSF V3R1 for OS/390: Customization</i>	<i>S544-5622-00</i>
<i>PSF V3R1 for OS/390: Licensed Program Specifications</i>	<i>G544-5626-00</i>
<i>PSF V3R1 for OS/390: Messages and Codes</i>	<i>G544-5627-00</i>
<i>PSF V3R1 for OS/390: User's Guide</i>	<i>S544-5630-00</i>
<i>IBM AIX PSF/6000: Print Administration Version 1.2.0</i>	<i>S544-3817</i>
<i>IBM AIX PSF/6000: Print Service Facilities for AIX Users Version 1.2.0</i>	<i>G544-3814</i>
<i>PSF/2: Getting Started</i>	<i>G544-3767</i>
<i>IBM Intelligent Printer Data Stream Reference</i>	<i>S544-3417</i>
<i>AS/400 Advanced Series: Printer Device Programming</i>	<i>Ver. 3, SC41-3713</i>

D.3 Intermate Publications

Adapter for SCS

Coax/Twinax Connection

Installation and User's Guide

GI-008-x

Glossary

Abend	Verb which means to end a process abnormally.
AFP	Advanced Function Presentation or Printing.
AIX	IBM's implementation of the UNIX operating system. The RISC System/6000, among others, runs the AIX operating system.
BOOTP	BOOTstrap Protocol. A TCP/IP protocol that enables a workstation on a network to find its IP address.
Form Definition	Form definitions define, among other things, the aspects about how data is placed on the physical page, from which bin the paper is to be fed, the number of sides of the sheet to be printed (simplex/duplex), and the print direction and rotation of the data.
Gateway	The connecting device between the LAN and other equipment from minicomputers to main frames.
Host	The main computer on a network allowing the use of data files and programs to all workstations.
IP Address	A 32-bit address defined by the Internet Protocol RFC 791 usually represented in dotted decimal notation, e.g. 157.184.67.102.
IPDS	IBM's Intelligent Printer Data Stream.
MTU	Maximum Transmission Unit The largest possible unit of data that can be sent on a given physical medium in a single frame on a LAN.
Netmask	See <i>Subnet mask</i> .
PPR/PPD	Page Printer Requester/Page Printer Daemon A non-standard bi-directional TCP/IP protocol allowing IPDS data to be transmitted over a TCP/IP network.

RFC	Request for Comments The document series that describes a part of the Internet suite of protocols and related experiments. All Internet standards are documented as RFC's.
Server	A network device that allows sharing of resources such as programs, storage and printers between multiple LAN workstations.
SIMM	Single Inline Memory Module.
Subnet Mask	For Internet sub-networking, a 32-bit mask used to identify the sub-network address bits in the host portion of an IP address.
TCP/IP	Transmission Control Protocol/Internet Protocol.

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